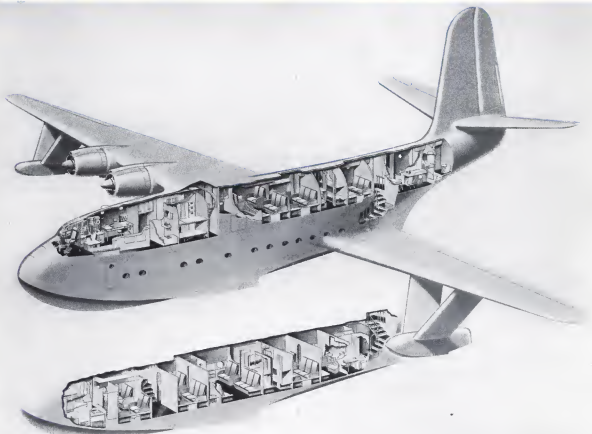


Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

MARCH 20, 1944



Post-War Passenger Version of the 'Mars': First sketch of the production model of the improved Martin Mars, world's largest flying boat, showing the interior as it would appear in commercial passenger service. Glenn L. Martin Co. is starting production of 20 such boats for the Navy, adaptable as a transport for cargo, battle casualties, troops or officer personnel. (Story on Page 8.)

Plane Plants Do Record War Job at Low Profit Level

Earnings are under all other major manufacturing divisions, SEC reveals in comprehensive survey of corporation incomes.....Page 25

Battle of Berlin in Final Stages; AAF Steps up Pace

American forces take over what's left of job, with large scale precision bombing of vital points which escaped RAF obliteration night attacks....Page 16

House Forming Committee on Post-War Air Problems

Group, headed by Woodrum, to make comprehensive survey of outlook with view to planning program to meet defense and civilian needs....Page 7

Hershey Shifts Deferment Control to State Chiefs

List of essential occupations in plane industry being prepared at Wright Field for use as guide to officials in making occupational exemption...Page 9

Surplus Inventories Segregated for Quick Reconversion

Aircraft industry begins separation of materials from current stocks with view to turning title over to U. S. as soon as assembled and catalogued. Page 12

Financing Programs Add to Reconversion Confusion

Aircraft industry, facing possible precipitate declines in post-war operations, expected to be particularly in need of new funds.....Page 13

Washington Observer

ACCUMULATOR
(YELLOW DOT)UNLOADING
VALVE
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PUMPS
800, 2000 and 3000 psi
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Early realization of the importance in the war effort that aircraft hydraulic equipment comply with Winterization Specifications of the Army Air Forces led to the extensive research and testing that Vickers has done in this field. The cooperation of the Army and Navy services has had much to do with the success of this Vickers program.

The Vickers Aircraft Hydraulic Units illustrated here have either Yellow Dot or White Dot marking, as indicated. The Yellow Dot signifies that the unit complies with Winterization Specifications of the Army Air Forces for operation between -65 deg. F. and 160 deg. F. The White Dot indicates extensive approval of the unit; it is fractionally satisfactory having proper mechanical fit (clearances checked with both maximum and minimum tolerances at temperatures from -65 deg. F. to 160 deg. F.) but does not have AN approved winterized packings. Just as soon as winterized packings become avail-

able, they will be incorporated in these units and request made for Yellow Dot approval.

Vickers is making every effort through its extensive research, engineering, manufacturing and testing facilities to assure early compliance of all other Vickers Aircraft Hydraulic Units with the Winterization Specifications.

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INDUSTRY TRADE ASSOCIATION—Industry leaders agree confident that the conference of East and West Coast officials of the National Aircraft War Production Council, scheduled next month in Los Angeles, will bring long-awaited action as a single, strong trade association for the aircraft industry. Three well known officials so far have turned down offers up to \$75,000 to take the helm of a reorganized Aeronautical Chamber or its successor. Eric Johnson of the U. S. Chamber, Arthur D. Whiteland, former WPB vice-chairman for civilian requirements, and head of Dun and Bradstreet, and NAWPCA's general manager, Frank F. Russell. First, the various industry leaders themselves must decide what they want.

SURPLUS WAR GLIDERS—One of the knotty problems after the war will be to decide, from a standpoint of airworthiness and safety standards, how many old light military aircraft will be permitted to fly about the country like the surplus "Jennies" of World War I time until the market is saturated with new models.

Surplus gliders such as the Waco variety will be a new center for regulation. Although the future of the heavy canvas-covered CG-4's has been given little or no thought except as salvage material, at least one glider manufacturer is exploring possibilities of equipping them with light engines and using them for commercial cargo operations.

THE LONG RANGER AGAIN—Prohibition of Boeing's Sea Ranger, known officially as the XPB-1 and known unofficially as the *Love Ranger*, apparently is off again. For a time it appeared that this quest craft would no into production but it developed that any air-

craft manufacturer who could handle the job—Martin was mentioned specifically—had too many other contracts to a higher priority to fill and it now appears that manufacture of this flying boat will have to wait. Only one of the craft ever was built, the *Sea Ranger* poised for Navy tests and was generally lauded. Its sharply curving hull lines and massive proportions of the fuselage ahead of its narrow wing are clearly shown in the accompanying photograph taken over Puget Sound.

KAISER—IN OR OUT?—Government officials come in for criticism for conflicting statements but the practice also extends to civilians. For example, Henry J. Kaiser denied that he had drafted a letter to stockholders announcing his resignation as president of Brecoer Aeronautical Corp. A few days later, Kaiser informed the stockholders that neither he nor his associates would serve as officers and directors after the Mar. 17 annual meeting. It is all pretty confusing for those who try to keep the public reliably informed, but despite the fact that there are factors involved about which no one but Kaiser and Brecoer and the Navy have knowledge.

RECRUITING WOMEN—The WACS, among other women's service organizations, are conducting an intensive recruiting campaign, offering free rides in a bomber and other inducements. At the same time there is in progress another intensive recruiting campaign to get women into vital war production work—also with inducements. To women eager to serve their country, the double-headed program presents complications and a number of them have expressed the viewpoint that they are not sure which way to turn. Sponsors of each campaign

Boeing's long, delayed Sea Ranger over Puget Sound



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This hose clamp can be installed by anyone in a few minutes, requires no
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AVIATION NEWS

March 20, 1944

CONTENTS	PAGE
Washington Observer	3
Headline News Section	7
Joe Wu	16
Personnel	21
Aircraft Production	22
Transportation	33
Financial	42
Editorial	46

THE PHOTOS

Globe E. Martin Co.	Cover, 8, 9
Borging Aircraft Co.	5, 30
Boeing	14
U. S. Army Air Forces	11, 16, 29
Curtiss Wright Corp.	27, 43
Canadian Pacific Airways	17
Northwest Airlines	17
Master Hynd	36

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Washington Observer

will assure you that they do not want to con-
 tact with the other, but the fact remains that
 they are conflicting and many Washington ob-
 servers are wondering why there isn't better
 coordination on such programs.

WOMEN IN TRANSPORTATION—A differ-
 ent approach to the problem was given in a re-
 port covering in Washington, called by the Office
 of Defense Transportation and attended by rep-
 resentatives of the Capital Transit Co., which
 operates Washington's street cars and buses, the
 Association of American Railroads, the Ameri-
 can Trucking Association and the Air Trans-
 port Association. The ODT wanted contribu-
 tions for production of a movie short that might
 aid in recruiting women for transportation ac-
 tivities. In connection with the campaign to
 get women into transportation fields, it is in-
 teresting and significant to note that the air-
 lines have had virtually no trouble, outside of
 the south, in recruiting women. And incident-
 ally, estimates are that on a nationwide basis
 about 34 percent of airline employees are
 women, set as high as the aircraft manufactur-
 ing industry but high enough to present
 problems in the future.

DOUGHOUSE FOR LABOR?—Is the govern-
 ment and out there is talk everywhere about
 the speech made by Rex Doughton, president of
 the U. S. Chamber of Commerce, who said
 among other things that labor is now on the
 threshold of the doughhouse which management
 has been monopolizing for some years. John-
 son doesn't want to see labor in the doughhouse,
 nor does he want to see management there
 either. He suggests a national audience pact
 between the two and gives two choices: Go ahead
 and turn the country into a continuous brawl
 and the government will chain you both, or
 make a better choice, work together and stay
 free. The reaction in the capital has been gen-
 erally favorable.

PUBLIC SERVANT AT A COST—Few aviation
 people realize the extent to which William
 A. M. Barlow, now Assistant Secretary of Com-
 merce, has provided his theory of public ser-
 vice. He joined the government as president of
 Defense Supplies Corp. in May, 1941,
 and did not go on the public payroll until
 August, 1942. His original salary was that of a
 dollar-a-year man, but even dollar-a-year pay
 disappeared in Washington circles after WPA
 approved source of them and aroused unfavor-
 able publicity.

SOUTH AFRICANS SEEK DOUGLASES—
 Do not overlook the South Africans in your
 surveys of post-war international air routes. Rep-
 resentatives of the government-subsidized
 South African Airways are seeking Douglas
 DC-3's here and returning visitors say the
 line expects to reverse commercial opera-
 tion locally within a few months. The line now
 is part of the Royal African Air Force Trans-
 port Command, and its plan is flying Dou-
 glases for the first time. For the future, officials
 have their eyes on Douglas DC-4's, which might
 help to South America and Europe, as well as
 throughout the dark continent.

FLYING FOOD TO MARKET—Study prog-
 resses as post-war business potential in flying

perishable food to markets. Wayne University's
 air cargo research department has spent months
 on a report on "Air Cargo Potential in Fresh
 Fruits and Vegetables."

George A. Howell & Co., Austin, Minn., Speer
 makers, have developed a portable refrigerator
 for shipping meat from the plant to coast mar-
 kets by air. Officials claim their business can
 be increased considerably by thus extending their
 sales area.

Other observers are asking why it is neces-
 sary to reveal refrigeration data for flying
 when say large planes can be taken up to alti-
 tudes with temperatures which will insure
 proper preservation, regardless of the time of
 year.

DOUGHOUSE FOR LABOR?—Is the govern-
 ment and out there is talk everywhere about
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 and the government will chain you both, or
 make a better choice, work together and stay
 free. The reaction in the capital has been gen-
 erally favorable.

NEW NAA PROGRAM—The National Aero-
 nautics Association and its new president,
 William T. Ryan, have proposed a program to stimu-
 late private flying, where they believe greatest
 utilization of the airplane is all its American
 new owners. This new start will be headed by
 all aviation people if the program is carried
 out as planned.

THE NORTHERN PLAN—The aviation in-
 dustry is watching closely the reaction to a pro-
 gram set up by Northern Aircraft, Inc., designed
 to help employees get production jobs when
 warplane construction are curtailed. LaMotte T.
 Cohn, Northern board chairman and general
 manager, writing in a contemporary, "Aviation"
 magazine, describes the plan "as much
 like the company's hiring plan in reverse." In-
 stead of coming, the nation for personnel, the
 company's industrial relations department will
 be creating a few jobs in peacetime industry
 in which employees can transfer when they are
 no longer needed for such work as producing
 Northern's P-41 "Black Widow" night fighters.
 The program indicates a move beyond the talk
 stage as post-war employment.

WOULD YOU
GO BACK?



YESTERDAY

(Photo courtesy
of C. G. Lohr, Inc.)

TODAY

Tomorrow!

The design engineer of 1911 worked wooden with the limited materials of his disposal . . . yet few of us would want to go back to 1911 models. C-D DILECTO, a laminated phenolic plastic, was first made in 1911, when it was introduced as a "waterproof" type of vulcanized fiber. Today C-D DILECTO is available in many different grades . . . each engineered to meet specific electrical insulating problems.

C-D Laboratory Research is continuous and tomorrow will be producing new electrical insulating materials to meet the ever more exacting demands of electrical engineers. If experimental work will assist you in your post-war plans . . . write us today.

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NASA standards used for the regular grades of laminated phenolics. These standards provide sufficient design data for the normal electrical insulating requirements. Where special problems are encountered, such as extreme dielectric, high or low temperatures, Q-M-F, etc., modeling the C-D Laboratory staff of trained technicians will study your problem and if necessary develop a special grade of DILECTO to meet it.

Through special manufacturing methods, and laboratory control, the properties of regular grades of DILECTO can be changed to meet special problems. For example, the C-D specifications for special DILECTO XLV require the following properties as compared to NASA standards for XGP—much "low loss" grades of DILECTO.

	1/4" THICKNESS	1/2" THICKNESS
Dielectric Strength (100 psi, 10 sec.)	15,000	5,000
Flame Retardant (100 psi, 10 sec.)	30,000	12,000
Compressive Strength (100 psi, 10 sec.)	30,000	25,000
Water Absorption (24 hrs., percent)	.75	.45
Moisture Dr. Loss (100 psi, 10 sec.)	400	340
Power Factor (1000 Hz, 10 sec.)	.034	.080
Shrinkage Coefficient	4.00	5.20

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VOLUME 1 • NUMBER 34

Aviation News
McGraw-Hill Publishing Co., Inc.

March 30, 1944

House Forming Select Committee To Study Post-War Air Problems

Woodrum chosen to head group organized to make comprehensive survey of outlook with view in planning program to meet defense and civilian needs of country.

By WILLIAM G. KEY

Establishment of a select committee of the House of Representatives to study far-reaching post-war military problems, in which aviation will be foremost in consideration, has the support of all governmental and industry groups concerned and should be completed shortly.

The select committee virtually parallels a unified command in that it will comprise seven members of the Military Affairs Committee, seven from the Naval Affairs Committee and seven from the general House membership, probably with heavy representation from the appropriations committee. Significantly, the only member of the House who owns and flies his own plane, Rep. Clifford Woodrum (D., Va.), has been approved by leaders of both parties and the military and Naval committees as chairman of the new body, which inevitably will have profound influence in the future of America's air power.

Woodrum is the ranking member of the Appropriations Committee and an advocate of a strong national defense. The committee is the result of intensive discussions covering several months, starting with a number of influential persons in Washington who had been comforted at the outbreak of this war with the tremendous problem of harnessing America's comparatively small aircraft, shipbuilding and armament industries to the immediate needs of defense and the expanded needs of defense. This group included top-ranking Army and Navy officers and civilian industrial experts brought in to assist the services and the gov-

ernment in peacetime production to the needs of the nation.

As the discussions of this group developed a concrete basis for action, many Congressmen joined in the planning and the result was the simple language of House Resolution 465 which should go before the rules committee early this week.

Post-War Air Force—The committee will have a strong voice in maintaining a strong post-war air force, and through the maintenance of that strong force build a strong manufacturing industry back of it. It not only will have

a voice in determining the production of the aircraft industry but also is expected to lend its strength to the provision of standby production facilities and in the development of aeronautical research necessary to keep American production and the service air force far ahead of that of any other nation. Heretofore it should be pointed out research in the aeronautical field has been a half-and-half proposition, with an overall picture of development available to any national group.

Appropriations—One major concern of the Select Committee will be the obtaining of appropriations, for which it is almost axiomatic that it will have to play a part in the education of the people to the need of expanding government funds to maintain air leadership. Those close to the discussions pointed out that possibly even members of Congress still will have to be convinced of the necessity for providing funds for research especially when those expenditures ultimately reflect in



AUSTRALIANS STUDY U. S. AIRWAYS METHODS

Australia's civil aviation agency has sent three officials to Washington to inspect American airlines and look into airway problems in this country. The group is headed by Daniel McVie, director general of Civil Aviation. Left to right are J. L. Smith, director, Aircraft Division, Australian War Supplies Procurement, Roy M. Redburn, chief electrical engineer, Department of Civil Aviation, Melbourne, and Charles J. Stanton, Civil Aviation administrator.

the profit columns of private industry and for retaining a strong nucleus of a war air force.

Before this war, neither Army nor Navy had funds available for research, and under past practices an individual company would develop a new wing or engine at its own expense.

The situation in which there was no particular management to private industry in regard to grants in research for which there might be no market would be alleviated through operation of the select committee, which not only could be expected to see that funds were provided for vital research, but which also would be in a position to evaluate developments in the light of the long-term needs of the country.

Joint Committee Work—The committee also would view the over-all military picture, and one logical outcome will be intensive studies of the principles of unity of command for all branches of the armed services and the wisdom of maintaining separate Army and Navy air forces. The contemplated studies of the committee also include future procurement and training of personnel, officers and men, both for the regular services and reserve components.

Plastic Upholstery

A new plastic fireproof upholstery, developed by United States Rubber Co., is now being used as turret lining and seat covering in bomber and fighter planes.



New "Man" Shekapi Glenn I. Martin Co. is completing a mockup of the production model of the JRM-1 by the Navy. Photo on left shows both flight deck and forward cargo compartment.

Production Mars To Fly More Cargo

Build-up fittings permit conversion to passenger, troop or hospital plane.

First full details disclosed on the Martin JRM-1, production version of the 39-ton Mars, indicate changes which will make the plane even more adaptable to post-war commercial use. Wingspread revisions from the original flying boat, both inside and outside, will make it even larger and more efficient than the prototype now in service in the Pacific.

It has been designed to fly at weights up to 145,000 pounds, as compared with a design weight of 140,000 pounds for the prototype. While primarily designed for cargo-carrying, the JRM-1 has built-in fittings which will permit instant conversion into a hospital ship, a passenger transport or a troop carrier.

Hold 48 Litter Cases—In the first category it will accommodate 48 litter cases with 25 attendants; in the second, 50 passengers in reclining chairs, all as the lower deck, and in the third, 132 troops, all seated. As a cargo carrier, the JRM-1 will have ample space for seven jeeps and even greater numbers of field guns or aircraft engines.

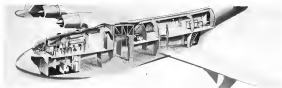
The first explorations of the new contract which calls for 30 of the plane, expected to be ready early next year, will be powered with

four 2,200-hp. Wright Cyclone engines, but the design provides for a switch to larger and more powerful engines should they become available, which will permit a considerable increase in gross weight before an increased payload.

Rudder Changed—External changes on the new model will include substitution of a single rudder tail for the turn rudder tail on the prototype, lengthening of both the bow and second step by four feet to provide added cargo space, and the enlargement and redesign of both main and rear cargo hatches.

Inside, the hull has been stripped of shower baths, pressurizing equipment, main tables and lounges which were included when the big ship was originally designed as a patrol bomber. One bulkhead has been removed and frames with openings wide enough to permit the passage of jeeps, field guns and aircraft engines substituted for the remaining bulkheads on the main cargo deck. The number of bunks has been reduced from 30 to eight, four of which are located on the flight deck in the space formerly occupied by the pilot's lounge, and four on the upper rear deck just aft of the main power plant compartment.

De-Down Fittings—Included in the new equipment on the JRM-1 is more than a ton and half of fireproof fittings, steel strips and engine daily tracks, a 4,000-pound capacity cargo hoist on an overhead track running out on both wings, and a winchway to the upper rear



Cargo Version Manufacturers' artwork sketch of the new Mars drawn as it would appear as cargo craft.

deck to permit its use for litter cases.

Four cargo hatches are provided for loading, compared with three in the Mars.

There are the two principal hatches, one under each wing, 50 inches wide and 50 inches tall. On the prototype, the main cargo hatches measure 36 x 50 inches and had horizontally sliding doors the top half of which rode out with the board hoist. Each of the new hatches is closed by vertically sliding doors opening outward. The doors on the production version are completely independent of the hoist, and the hoist itself is a self-contained unit which can be run to either side without any re-gearing, such as was necessary with the fixed slide on the Mars. The two aft cargo hatches are on each side, just forward of the second step. They provide openings 50 x 60 inches and have doors which slide up inside the hull when open. Immediately above the aft hatches are trap doors 30 x 34 inches for loading heavy cargo onto the upper deck.

Revolving Warehouse—Compared with the highly compartmented Mars with its many bulkheads and 20-inch bulkhead doors, provisions of importance to its original patrol bomber use, the structure of the JRM-1 resembles a spacious warehouse.

WMC Preparing List—It was understood that the War Relocation Commission was preparing such a list and it was probable that officials at Wright Field would prepare the list for the aircraft industry, which should assure the retention of key production men in industry.

Local draft boards have been notified that no registrant up to 26 was to be considered a key man unless his deferment is recommended by the state director.

State last Feb. 1, this policy has applied to registrants 18 through 22. In addition, the only other ex-

Hershey Shifts Deferment Control Into Hands of State Directors

List of essential occupations in plane industry being prepared at Wright Field for use as guide to officials in making occupational exemptions.

By SCOTT HERSHEY

Deferment of aircraft and other war workers in placed strictly in the hands of State Selective Service directors under the new amendment to draft regulations just issued by Maj. Gen. Lewis H. Hershey, a situation which should protect occupational deferments in vital industries if it is worked out according to present plans.

While off hand it appears there is a tightening of occupational deferment regulations, which would seriously affect the aircraft industry—particularly in engineering and technical departments where a large percentage of the men fall within the 18 to 26 limit—plans are in the making for a list of essential occupations in essential industries to be used as a guide by state directors in making their deferment decisions.

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ceptions ordered considered for men under 26 is where they are engaged in an occupation which may be specifically exempted by the national director of Selective Service.

Curb on Deferments Expected—New directives sent out by the national director were interpreted in Washington as designed to correct an erroneous impression gathered by many local boards given by President Roosevelt's executive order of Feb. 26. This order called for a re-examination and tightening up of occupational deferments and stopped up the dealing of these men.

In numerous instances this was interpreted to mean that deferments in the 18-26 age limit should be halted.

This situation caused considerable concern in the aircraft manufacturing industry which saw many key men, particularly in technical branches, lost to the armed forces at a time when production schedules have been accelerated to an all-time high.

Married Men Avoided—It is no secret in Washington that many local boards which have failed to meet their quotas in recent months have avoided draftmen married with, particularly those with children, even though these men are not engaged in essential war occupations. The tendency in some boards has been to turn to young,



War Relocation Commission above are in pilot's seats. On right, workers show how litters are loaded to upper deck through special trap doors. Air's hospital ship, the JRM-1 will carry 48 litter cases and 25 attendants.

announced man, despite the fact that many of these are key production men in war industries. It appears likely that the new regulations will result in the drafting of many married men with children who cannot satisfy state directors that their work is essential.

President Roosevelt told his news conference that it was just as necessary to prevent work engagements in war industries by taking too many essential workers or to get more young men in the armed services. A degree of necessity exists

phased by Mr. Roosevelt should be the decisive factor in any given case of whether a young man was more useful in a war plant or in the armed services.

Specialists—While he pointed out that more and more young men are needed in the armed services, he also noted that some young men are specialists in certain industries. While he did not mention the aircraft industry in this connection, his remarks apply directly to the industry's situation.

Industry to Discuss Top Problems At AWPC Conference in April

Shift of war emphasis to Pacific in coming months to have important effect on aircraft plants.

By SCHOLER BANGS

Production problems that will result from the shifting of the main theater of war from Europe to the Pacific will keynote a conference of leading aircraft executives to be held in Los Angeles April 26, at the regular semi-annual meeting of the Aircraft War Production Councils of the east and west coasts.

Philip G. Johnson, president of Boeing Aircraft, also head of the West Coast council, made the disclosure in a discussion of issues arising in conducting the industry on the Pacific coast.

West Coast Industry—He emphasized that airplane building will be the "main production" of the West Coast aircraft factories after the war and stressed that the companies' post-war plans are not sufficiently crystallized to discuss "other tasks" they may produce.

Cost Reduction Cited—Declaring that improved tool design and labor utilization will continue to reduce the "happier cost" of military plants, Johnson said aircraft executives anticipate further improvement at production efficiency through government pooling in regional storage warehouses of surplus materials currently held in aircraft plants.

Johnson also said Southern California factories that participated in the production of Boeing B-17 Flying Fortress will not be included in the B-29 Superfortress program. Production of Boeing's Superfortress, he said, will be carried out at Boeing's Seattle and Wichita plants. He also said the Bell, Foster Body, and Martin factories

Correlation of B-29 production will be through a B-29 committee. He mentioned that the committee that drafted Boeing-Vega-Douglas B-17 production.

Northrop Move Controversial—Both Johnson and J. H. Kindelberger, president of North American Aviation and West Coast Council vice-president, commended Northrop Aircraft's current nationwide search for post-war jobs in other industries for Northrop workers who can not be released, but said they believed the war's end is too uncertain to qualify industry-wide job-hunts of that nature at this time.

Concerned over the prospective swelling of paying men in the industry, Kindelberger said vigorous appeals will be made to retain young production executives and engineers, adding "There is no question on the part of the aircraft industry to play dog-in-the-manger with its manpower. But we do have to maintain a nucleus of skill in the face of a critical situation of our skilled worker resources. The industry's manpower while today is wholly unskilled."

Shoridge Believed—Kindelberger viewed as "very encouraging" the fact that Southern California aircraft factories today are confronted with a manpower shortage of only 3,000 men, compared with the 7,500 anticipated for this time.

Johnson, however, said Boeing expects a need for 3,000 additional workers when the company's Seattle plant, now building B-17's is converted to B-29's.

Rotor Patents

Exception has been taken in some quarters to recent statements that the basic patents involved in rotary wing machines, particularly helicopters, have lapsed, leaving the field open to manufacturers.

In general, early patents on rotor cyclic feathering and suspension arrangements have run out. But the question whether any given device, new or old, is basic to direct lift, is most controversial. A device that has been basic for a quarter century may not be so even today or in the near future.

There are said to be several thousand patents relating to direct lift, and many thousands if foreign rights are included. The only way to reach conclusions on the extent of patent coverage in force in this field would be to list those that seem to be important on a basis for overall analysis. Even then the result would be vague at best.

Bell Improves New Helicopter Model

Lawrence D. Bell, president of Bell Aircraft, disclosed in the company's financial report, that the Bell helicopter has been under development, was further perfected during the past year and that it incorporates a principle giving increased stability to the craft in flight.

He also mentioned that production had started on the new fighter plane, previously announced, a plane with low drag wings and two-stage supercharged engines to give speed and high altitude performance. Helicopter production has started on schedule at Bell's plant at Muskegon, Mo.

Financial Report—Bell Aircraft reported net profit of \$1,662,888 in 1943 before integration, equal to \$7.77 each on 214,260 shares, against \$2,931,400 or \$8.11 each on 356,240 shares in the previous year.

Company sales amounted to \$632,124,000, a new high, compared with \$121,263,327, for the previous year, in 1942. In a letter to stockholders, Bell said substantially all the company's business in 1943 was subject to integration, but the evidence did not indicate that a refund will be required.

Jet Power to Bring Big Changes In Flying Boat Designs

Sea craft to benefit from new plant but more time will be required for development than with land planes.

By BLAINE STUBBSFIELD

Development of jet power eventually will permit extensive and probably favorable revision of flying boat design, in the opinion of engineers questioned by AVIATION NEWS. But landplanes have initial advantages in adaptability to jet power, and may be expected to take the lead in efficient use of it for some time to come.

Up to now, the height of flying boat hulls has been increased as power increased, to raise the wings and keep a low-drag installation of engines and staff boxes just pelted clear of water and spray. Gullwing design in some cases has helped to raise the power plants and thus moved some hull depth

Advantages—If and when jet engines are brought to a degree of efficiency that will make practical use on full-scale aircraft, including seaplanes, they will enable designers to base their hull shapes on aerodynamics to a much greater extent than is now possible. It seems probable, engineers say, that the smaller waterplanes, even jet powered, will always need higher wings than landplanes do.

The problem of keeping the tail assembly high will be even more difficult than it is now. If the hull is lowered for jet power.

Disadvantages—Chief disadvantages of applying jet power to flying boats, in the present stage of development, is that a boat takes longer in seconds to get off than does a landplane of equal weight and power, and the low efficiency of the jet at low speed would lengthen the run. It lacks a boat that few well enough with engines and propellers might not take off at all with jet engines which, at high speed, delivered the same power.

In a flying boat there is a difference between thrust available and thrust required, during take-off, which does not exist in the landplane. The reason for this is that as long as it is in the water, the flying boat has a component of water drag, while the landplane's drag on the ground is almost entirely aerodynamic.

Problems—Pointing out the problems of applying jet power to flying boats is not to detract from the future of the combination. Competent authority indicates that the waterplane may benefit as much or more from jet propulsion as will the landplane. For one thing, it is longer and expected that jet power can be made efficient at low speed. This will be necessary before it can be used on commercial airplanes, sea or land type.

A second point on the problems of flying boat design with jet power, is that towing or rockets could assist the machine out of the water and the smaller types could be catapulted.

Wright Field Tests New Air Weapons

Secret areas of greater importance than jet propulsion plans, Major General Branshaw discloses.

By ALEXANDER MCGUIRE

Secret military developments now under wraps at Wright Field, Materiel Command headquarters of the Army Air Force, eventually may be revealed as of greater importance than the revolutionary jet propulsion airplane. Map Gen

Consistent Improvement—Pointing to the mounting of a 75 mm cannon in a twin-engine B-25 Mitchell bomber, as a recent example of the constant improvement and modification of our air weapons which is being done by Materiel Command, General Branshaw praised the contributions of his division chiefs, Brig Gen. Franklin O. Carroll, engineering; Brig Gen. Orval H. Cook, production; and Brig Gen. A. J. Jones, at this time procurement chief, in this project, and cited Col. Franklin C. Wolfe, aerospace laboratory chief, for his part in the armament project, which brought a new flying heavy artillery to bear on the Japs in the Pacific.

Expanded many-fold and accelerated by war-time demands,



Brands Materiel Command: Maj Gen Charles E. Branshaw, Commanding General of the AAF Materiel Command, who has been with the Air Corps for 25 years.

Charles E. Branshaw, commanding general, discloses in a recent announcement.

Pointing out that technical experts of the command are continuously at work at a still accelerating pace, to develop ideas and designs for new war planes, weapons and equipment, the Materiel Command chief referred to his command's program as "a never ending struggle to keep the AAF in a position of leadership among world air powers, technically and organizationally."

Materiel Command is responsible for engineering, development, procurement, production and inspection of all AAF equipment and the billions appropriated by Congress for AAF equipment flow in just part through Materiel Command channels, to contractors and subcontractors throughout the nation.

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Production Chief: Brig Gen. Orval H. Cook, chief of Production Division of the Materiel Command.

the Material Command's research and development program is a continuation of Army air research carried on for many years at Wright Field and at McCook Field. Despite the fact that the research was often curtailed and hampered by lack of funds in peacetime, Army's air technical experts examined literally thousands of ideas, testing, redesigning, and developing projects as changing materials and new scientific knowledge made possible advancements.

Engine Research—Army's aviation research efforts have contributed largely to development of the aircraft engine from the 400-hp Liberty "motor" of 1918 to one of more than 2,500 hp now. The turbo-superchargers, which make possible such efficient performance of American fighting planes in the stratosphere, was developed after many years of continuous study and research, at times carried on by Materiel Development engineers when materiel engineers dropped the idea as presenting insuperable obstacles.

Among developments in which the Material Command and its predecessor organization pioneered are secure first stages with private industry as a self-sealing, leakproof fuel tank so efficient that the Germans have recognized its superiority to their designs and have abandoned their own ideas to copy it. The one-fall parachute, reliable in landing zone, first radio beacon, first night flying equipment, oxygen equipment for high altitude flight, pressurized cabin for altitudes above 40,000 feet, automatic pilot and bomb sights.

Two-Way Circuit—Idea for new developments flow as a two-way circuit between the Materiel Command and the materiel and engineering units, with frequent assistance from technical requirements and demands. Manufacturers' engineers may design a new paper bomber which goes "through the test mill" at Wright Field, to emerge a considerably improved aircraft, or one greatly modified to meet special needs in some specific theater, or for some future plan.

Sometimes, as in the case of the new propellers, the plan, built by Bell, the Materiel Command lays down specifications as complete as that the plane is almost a Materiel Command design.

Study of captured enemy equipment and of foreign equipment sent by our allies in another source of information with which the Materiel Command works.

Surplus Inventories Segregated By Plants for Quick Conversion

Aircraft industry begins separation of materials from current stocks with view to turning total over to government as soon as it is assembled and catalogued.

Aircraft manufacturers, confronted with excess inventory and surplus materials that could wreck their financial structure in the event of sudden contract cancellations, have planned separation of such inventory from their current stocks and expect to turn title of this material over to the government as soon as it can be assembled and catalogued.

Meeting with unprecedented speed in the face of sharp warnings, West Coast plants estimated to have between \$20,000,000 and \$60,000,000 tied up in this surplus material have started the machinery for separation of the inventory, it has been learned. The total of this material on the West Coast alone will run to \$50,000,000, while in the east the figure will be far higher.

Topheavy Surplus—The magnitude of the problem can be recognized from the fact that one plant with a total capitalization of only \$4,000,000 has more than \$40,000,000 in surplus materials, and that the surplus in this plant alone could equal the capitalization.

Under preliminary discussions with government officials, the surplus will be segregated and warehoused through the distribution or other channels or for acceptance of that is necessary.

Warehousing—Title for this surplus will then be transferred to the government. Under plans now being discussed, the warehousing would be placed in the hands of the industries involved. For instance, the aluminum industry would take over the warehousing of all surplus aluminum and this surplus could be channeled to civilian consumer industries, to other war plants, or scrapped if unusable. The steel industry would be entitled for warehousing of steel products and the same system followed.

In some cases, the warehouse space will be obtained by transfer within companies. Boeing, with 19 warehouses in the Seattle area alone, could take custody of two of these warehouses, the surplus materials by transfer of purchase contracts to warehouses where the

surplus has been located and segregated. The government then can take title and dispose of the material. While this is an enormous task, it is deemed imperative that action be taken to at least partly cushion the impact of contract terminations, which at least are going to endanger seriously the financial structure of the companies involved. It was felt that it was a task this could no longer be delayed.

May Go to War Plants—In this way, also, it may be possible to channel some of the materials into war plants where they are currently needed and into civilian production.

The surplus inventory has been built up during the period of heavy war production and during the period of somewhat uncertain production could not very well be segregated by the manufacturers. Some of it was ordered when production schedules were uncertain and a manufacturer could not be sure of the volume of planes he would have to produce.

Other surplus was built up when contract terminations for certain types of ships concentrated plant production on another plane for which the surplus materials could not be used. Because of the urgency of production, these surplus materials remained in the general warehouse facilities of the production. Other normal factors contributed to building up the surplus, that now endangers the whole structure of the manufacturing organizations.

Estimated at \$50,000,000—One industry source, who adds that it would be impossible to arrive at any definite figure, estimated that the West Coast plants have \$50,000,000 worth of these surplus materials and said it would take at least two months to accomplish the physical task of separating current inventory from surplus even with the companies moving at top speed. They are now slower to the imperative need in this task now are expected to expedite it, this very figure in the aviation industry pointed out.

Financing Programs Add to Chaos Of Reconversion Discussions

Aircraft industry, with tremendous stake in post-war era, and facing possible precipitate declines in operations, expected to be particularly in need of new funds.

Bernard M. Baruch, John M. Hancock, Secretary George, and other post-war planning leaders acknowledge complexities of methods of financing reconversion, and all see serious need for some legislation. Underneath the present discussions, however, are a welter of complicating situations involving both renegotiation and tax penalties, and as a result of the polling nothing is clear, but chaos and confused thinking has emerged so far.

The aircraft industry, more than any other, has as important a stake in the financing question. The automobile industry faces a depleted market and a tremendous backlog of business which is ready to be tapped. The power reconversion is accomplished. Similarly, manufacturers of consumer durable goods, such as vacuum cleaners, electric irons, and refrigerators, face virtually unopened markets. Consequently, their need for financial aid is more pressing than in many trades, does not exist at all. On the other hand, aircraft manufacturers—as well as aircraft instrument and component manufacturers—face tremendous declines in the volume of their operations and in the case of practically every company, financial will seem desirable.

Drop to 3.5% Seen—The top officials of an auditing aircraft company was told recently by War Dept. officials that his company could expect to drop to one-fourth of his present operations with the end of both the Japanese and German phases of the war. How much of the drop would come with the closing of the German phase was not indicated. Facing such a steep decline in operations as well as a market glutted with a product that does not have too high an obsolescence rate, the aircraft industry unquestionably will require some type of financial or reconversion.

Some light is expected to be thrown on the subject of what will be done to meet the working capital needs of aircraft companies whose contracts are terminated,

when a special unit named several months ago to study this question files its report. This unit, headed by Carson Rhough of the Pacific Bureau of the War Production Board, has been studying the question of interim financing for some time and is now understood to be preparing to issue its findings in the form of recommendations which will be laid at the door of the Baruch-Hancock group.

Outlook Cited Gloomy—Early reports leaking from the Rhough staff bear very little promise for the aircraft industry. As a matter of fact, they are extremely gloomy. While no one will confirm or deny details of the forthcoming report, it is believed that the group will hold to the position that industry in general has assumed comfortable profits from their war contracts after renegotiation, that present carry-back provisions of the tax law help to establish satisfactory reserves, and finally that industry has a nice profit position and is currently capable of taking care of its own needs during the transition period. In brief, it is believed the report will seek to sustain the theory that industry can on a stable basis be not necessary.

One prominent government official who did not wish to be quoted admitted there was considerable discussion now going on over the financing question and acknowledged that the subject was currently clouded with chaos. Neither OWB nor WPA would decide the issue, and the subject was purely a matter for Congress.

Baruch Report—The Baruch report, which has now grown to the point where it is regarded as the handbook on reconversion, discussed the extent to which financing needs vary. "Happily, many war contractors are already adequately financed, and will not need any kind of loan," the report declared. "Many have the credit standing which would permit them to borrow through commercial channels without any governmental guarantee. Many others will be able to borrow from commercial

banks with the aid of a Government guarantee, and the Y loans will meet this need."

Despite these warm words of reassurance, however, the aircraft industry is likely to be in a particularly unenviable position if such thinking is eventually translated into administrative policy of some statutory action.

Doolittle Is Made Lieutenant General

Roosevelt recommends temporary rank for air hero who led first air attack on Tokyo.

Nat quite two years ago, James H. (Jimmy) Doolittle, then a lieutenant colonel, led the first air attack of the war against Tokyo.



Doolittle

That was on Apr. 18, 1942. For this he was awarded the Medal of Honor and the next day he was promoted to brigadier general. Now the White House has recommended that he be given the temporary rank of lieutenant general. He is the commanding general of the United States Eighth Air Force, which is giving the Nazis daily hammerings.

Shortly after the Tokyo raid, General Doolittle was assigned to duty with the Eighth Air Force and the following September he was named to command the 12th Air Force in North Africa. He was promoted to major general (temporary) Nov. 20, 1942, and was named Commanding General, North African Strategic Air Force on Nov. 1, 1943, and on Jan. 1, 1944, was named to command the Eighth in Great Britain.

NWLB Rules on Two Plane Plant Cases

Refuses to extend retroactive date of Lockheed pay increase, says most of week in U.S. and war agencies.

By MARY PAULINE FERRY

National War Labor Board last week denied a request by International Association of Machinists-AFL that the wage increases previously approved by the Board for employees at the Lockheed Aircraft Corp., Dallas, be made retroactive to July 6, 1942, rather than Mar. 3, 1943, as originally set. In July, 1942, the Board authorized the scale of rates it established for the southern aircraft industry extended to the Dallas plant of Lockheed. The union, however, based its request for the retroactive date for the new rates on the grounds that many of the Dallas employees had been transferred from the Southern California plants of the company and that War Labor Board in San Francisco, providing that consultation between management and the union on the subject of up-grading, should take precedence over the WLB order issued Mar. 3, 1943.

Suggestion Box Bores Plans—The Board denied approval of a suggestion box before plan submitted by the Times Aircraft Corp. for employees at plants in Los Angeles and Van Nuys. NWLB indicated that a new plan, with some restrictions on or limit of payments to be made for employee suggestions, would be required.

NWLB has announced a procedure agreed upon with the Office of Price Administration for handling adjustments in compensation of employees who work on or at a percentage of profits, and instructions were sent to the chairman of 12 regional boards.

Wage Structure Involved—Labor members dissatisfied, but NWLB decided that while individual requests might have resulted there the transfer, to grant retroactive pay for the period between July 6, 1942, and Mar. 3, 1943, would have the effect of undermining the wage structure in Dallas. It particularly stressed the effective date for extension of SCAT rates to other plants in the area had been set at Mar. 3, 1943.

In another decision it was de-

clined to grant an agreement contained in the collective bargaining contract between IAM-AFL and the Consolidated Vultee Aircraft Corp. should govern the upgrading in the company's San Diego plant.

In addition the Board upheld an order of the 39th Regional announced by GPA.

War Production Board announced that production of small electric motors for aircraft use will not be sufficient to meet present programs, unless additional manpower and some additional facilities are made available. WPB secured additional manpower and facilities for the production of motors. Machine tool shipments in January declined about a 7½ percent from December to 174 of \$36,339,000, the Board stated. December shipments were valued at \$40,611,000. A new Director of WPB in Detroit region is Cavetta Thomas, whose appointment has been approved by the automotive manufacturers.

War Dept. announces awards of construction contracts totaling \$1,400,000 for additional facilities at aircraft and war depots.

The National Labor Relations Board certified for the majority of salaried employees at Consolidated Vultee Aircraft Corp. at San Diego, the Agricultural Industrial District Lodge 1178, IAM-AFL.

At the Glenn L. Martin-Nebraska Co. engineers certified by International Union of Operating Engineers-Local 1471, production and maintenance employees by UAW-CIO, and for hourly paid plant-protection employees, UAW-CIO.

Discussions were held at Illinois Division, Bendix Aviation Corp., and NLRB certified for maintenance carpenters the Chicago District Council of Carpenters-AFL, production and maintenance employees, UAW-CIO, for operating engineers, International Union of Operating Engineers-AFL. At the same time the Board dismissed petitions filed by UAW-CIO Local 302 and AFL petitions to elections and transfer of jurisdiction elections in which electricians elected in favor of I. B. E. W. Local 80-133-AFL.

The Board ordered election at Raytheon Overland Motors, Inc., for maintenance workers, machine tool and the makers, tool grinder and tool inspectors for an against UAW-CIO, Mechanics Education Society of America, Local 4 CUA.

Heldliner Output Ahead of Schedule

Production of Curtiss SR8C Redtailer at the Columbus plant of Curtiss-Wright Corp. is now ahead of schedule and the production rate is steadily climbing, Rep. Melvin J. Mass (R, Minn.) told the House Naval Affairs Investigating Committee in a special report.

Mass was head of a sub-committee that made a surprise visit to the plant recently, finding conditions excellent in the one-time "bare spot" of the production program.

Contract Completed—The Congressman reported that the plant had completed its contract for the old SC8C Redtail scout observation plane and is scheduled to begin production of the new SC scout plane. The SC is expected to be a radical new plane for bushiness and cruiser use. The plant also is experimenting, Mass said, with the new B7C five-engine bomber, which is expected to be an improvement on the Redtailer.

NAA Maps Program For Private Flying

A program which places major emphasis on preparation for an increase in private flying is being undertaken by the National Aeronautics and Space Administration to perfect the ground work of facilities, education, law and service for the post-war aviation expansion anticipated.

The NAA announced that its role in the post-war era of aviation development will be "to serve the consumers of aviation products and services—the people who own, rent or fly personal aircraft, who are citizens, chartered pilots and dispatch property and used by air."

Local Units Stressed—Under the program NAA will stress local chapter organization at the grass roots where it believes the plane's greatest post-war utility and the greatest need for preparation now exist. These local units will concentrate on development of local airports, study the need for airports, study air services and promote all phases of aviation as they affect the community.

The Association announced it has begun studies of a service program for private flying after the

war to offer flight maps, training services, airport directories and approved landing, repair and hotel facilities. Under consideration is ultimate expansion of this service on an international basis through NAA's identification with the Pan-American Aeronautics International.

Program—In the fulfillment of this program, the Association announced, "the NAA will cooperate fully with any other agency working toward the same ends. Our major purpose is to get things done and not to establish any responsibility of interest."

Principal phases of the program

Private Flying—Study and promote a national airport plan, seek simplified, safe and sane air traffic rules, maintain close vital over land, state and federal boundaries and strive for uniformity in air youth training, promote all wartime pilot training service and work for the creation of a suitable air reserve training corps after the war.

Aviation Education—Work for the extension and implementation of aviation education in the public school and college systems; assist Boy Scouts and other organizations in air youth training programs of air youth training; promote all wartime pilot training service and work for the creation of a suitable air reserve training corps after the war.

Commercial Air Service—Interest in proceedings before the Civil Aeronautics Board to extend airline service on the basis of studies conducted by local chapters provided that NAA shall not at any time favor one airline over another. Lower government and encouragement of private ownership of commercial air service both domestic and international, operating under reasonably regulated competition.

Aircraft Industry—Maintain liaison with aircraft manufacturers on problems affecting the users of planes and service, including problems of demobilization and disposal of surplus aircraft and aircraft preservation of private ownership and management of aircraft manufacturing plants, urge and aid scientific research in all phases of aviation by both private and government agencies.

National Defense—Seek establishment of a Department of National Defense with a Secretary of National Defense and Under Secretaries for the Army, Navy and Air departments.

225 Surplus Planes Of WTS Sold

About 225 of the 1,100 War Training Service trainer planes recently declared surplus have been auctioned, posted and sold to buyers. WTS officials say the demand for this biggest offering of used airplanes is lively and the entire lot will be disposed of within a few weeks.

The 1,100 planes declared surplus are part of 5,000 purchased months ago by Defense Plant Corp. and lent to WTS contractors without charge. The planes are being offered for sale because civilian aircraft are in Army and Navy air bases being curtailed. All 5,000 planes will be released progressively as the military air services dispose with civil air training.

Brantiff, Panagra Mail Cut Confirmed

Civil Aeronautics Board has diagnosed of two more mail rate cuts, in each making final an earlier tentative finding that the rate should be reduced. Lines affected are Braniff Airways and Pan American-Grace Airways.

The Board order setting Brantiff's

rate at 8.3 mill per pound mile was the eleventh, setting that figure for an air carrier in the last 17 months. Effective over Brantiff's entire system, as of Feb. 1, 1943, it will amount to a reduction of about \$390,000 for the remainder of 1943 and is expected to reduce mail revenue about \$480,000 for the year after Jan. 1, 1944. Then what it would have been under the old rate that rate was 24.8 cents per pound mile, and was set by CAB from June 1, 1942.

Panagra Rate—The new rate set for Panagra's entire system, effective from June 1, 1943, is 31.87 cents per airplane mile. It replaces an earlier rate of 34.77 cents per airplane mile, based from July 1, 1942. For June to December, 1943 the new rate will cause reduction of approximately \$350,000, and for 1944, about \$650,000.

The Board explained that Panagra's new rate was compiled on an airport-to-airport basis where previous per mile computations were based on shorter practical airway distances. The new rate applies when daily mileage does not exceed 16.117 miles for base poundage of 200 pounds, plus excess of 0.05 cent per airplane mile for each pound over base poundage. Per month when mileage exceeds 10,117 miles, proportionate adjustment will be made.

BRIEFING

William A. N. Berden's nomination as assistant, Secretary of Commerce was confirmed by the Senate last night after approval by the Senate Commerce Committee. Confirmation took only a few moments. A clerk read the nomination, and the presiding officer announced that, without objection, it was confirmed. Berden formerly was special aviation assistant to the Secretary of Commerce.

Windsor Reporting Arms Co., division of Western Cartridge Co., is now manufacturing defense shells that substitute for batteries in the starting of airplane engines. Four sizes of the shell are being made by Windsor. They are placed in the starting mechanism and fired electrically by a fuse assembly in the head of the shell.

William Stiles, Detroit, was appointed to Michigan State Board of Aeronautics.

The Canadian pilot who downed Baron von Richthofen, German ace of World War I, died near Toronto at age 80. He was Capt. A. Roy Brown, former operator of General Aviation.

Wayne University, Wayne, Mich., will start a course in jet propulsion next September, taught by Gustaf H. Gustafson, aerodynamicist formerly with Sikorski Laboratories. He also is well known for work in helicopters and in the aircraft development.

Shed Air Force—General Alexander Laboratory was mentioned in Kansas, Ind., 2,000 miles, with 18 tons of wings, in 29 hours, 41 minutes flying time, via Newellsham, Rabat, and Cairo.

A Casuarina Laboratory flew from San Francisco to Australia and back in 3 days, 28 hours, 20 minutes, breaking previous record of 4 days, 18 minutes. Flight was made in great weather in California.

Refish Air Transport—Command is expected to become a permanent part of the RAF "and for many years to come it will be numerically larger than the number of aircraft at the disposal of civil air transport," said Sir Archibald Sinclair, Air Secretary, in Commons.

COMMENTARY

Battle of Berlin in Final Stages As AAF Steps up Daylight Raids

American forces take over what's left of job with large scale precision bombing of vital points which escaped obliteration night attacks by RAF.

The attempt to knock out Berlin, military, industrial and political center of the Reich, by Anglo-American air power began Nov. 18, 1943. Since the start of the war and up to that date the RAF Bomber Command had attacked the Nazi capital about 90 times, including high stringing attacks by fast Mosquitoes and small and medium forces of heavy bombers.

However, on the night of Nov. 18-19 RAF Lancaster and Halifax four-engine bombers opened the all-out campaign to eliminate the We 1 target in Germany. The attack was in force, and some 1,000 tons of bombs were dropped, with good results.

The accompanying table will show the progress of the RAF campaign by night, with the climax of some 2,300 tons of bombs dropped during the last eleven nights of January (5,000 the last three nights). A final jolt on the night of Feb. 12-13 was administered when nearly 550 of the RAF heavies dropped some 2,000 tons of bombs at the terrifying rate of 60 tons per minute. Speedy Mosquito reconnaissance bombers were the first one hour later reported a "very large area of fire, with smoke rising to a height of nearly four miles."

3 Main Assaults by Night—The completed for the time being, and possibly for good and all, the RAF part of the job, which was done in three stages of five attacks each from Nov. 18 to Dec. 3, about 5,000 tons of bombs were dropped, including one very heavy attack from Dec. 18 to 19 when 2,300 tons were dropped, with also one very heavy attack. After results were assessed, British authorities stated that up to this point about 48 percent of the built-up portions of Berlin, including many of the central government build-

ings and some 30 important industrial plants were severely damaged or destroyed. It was at this time also that the estimate was given that 35,000 tons of bombs probably would be required to wipe out the city as a part of the Nazi war potential. (It took more than 10,000 of an estimated 15,000 tons required to flatten the steel port of Hamburg last summer, and according to recent reports it is now well more than 50 percent back in the rising, but cities have a very stubborn way of refusing to be down and be counted out for good.) Up to the morning of Jan. 3, nearly one-half of the 35,000 ton total had been dropped on Berlin. The third stage in the RAF campaign con-



FW-190 LANDING GEAR:

German type of elongated landing gear of the Focke-Wulf 190 is seen in this picture of the captured fighter now at Wright Field.

Battle of Berlin		
	RAF by Night	Tons Dropped
Nov. 18-19	"In force" 500 to 400 heavy	1,000
20-22	"In very strong force" 500 to 100 of heavies	1,000
23-24	"In force" 500 to 100 of heavies	1,000
25-26	"In force" 500 to 100 of heavies	1,000
27-28	"In force" 500 to 100 of heavies	1,000
29-30	"In force" 500 to 100 of heavies	1,000
Dec. 1-2	"In force" 500 to 100 of heavies	1,000
3-4	"In force" 500 to 100 of heavies	1,000
5-6	"In force" 500 to 100 of heavies	1,000
7-8	"In force" 500 to 100 of heavies	1,000
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Purple and let him complete the knockout of Berlin by daylight attacks.

► Destroying War Factories—That this is right down Jimmy Doolittle's alley goes without saying. It was the same Special-Delicate team that put on the terrific aerial barrage resulting in the all-air victory at Peleliu, which General Doolittle hailed as "a land mark in the history of military aviation." He added, "It was merely a proposition of steadily increasing the Panzerella bombardment to a point at which it was physically impossible for the defenders to stand up under it."

The capitulation proved conclusively that no army can stand up under the prolonged, concentrated bombardment of properly selected objectives. "He will have many opportunities to repeat this performance in western Europe before victory is won. In the case of Berlin, the problem is to knock out by precision blows in daylight many important war facilities named by the RAF in their night attacks."

► Berlin Total Industrial Area—In the recent discussion in Great Britain and this country in which bombing of enemy cities is discussed, the fact that Berlin is the site of a tremendous concentration of war industries and is thus in itself a prime military target has been generally overlooked. There are literally hundreds of war plants in the greater Berlin area, including many of vital importance to the aircraft industry which is top priority on the Anglo-American strategic bombing program. Aircraft assembly plants, aircraft component parts, engines and parts, bell housings, instruments and accessories, aircraft armament, ammunition, bombs and rockets, radar and electrical companies, all are here. RAF reconnaissance photographs taken during February missions that set off Berlin's heavily industrialized districts has escaped being lost. More tonnage of bombs dropped no longer tells the whole story. Owing to the outstanding success of the Pathfinder technique, British "area bombing" has become far more concentrated and devastating than even six months ago, and the new 4,000 factory-busters can now be planned with a high degree of precision.

► The Clearing—However, the American daylight boys are now carrying the battle to Berlin with the two-fold object of destroying the remaining war factories and

locking the dwindling Luftwaffe fighter squadrons into the air to defend such vital targets. More than 300 enemy aircraft were claimed on the heavy attacks against Berlin Mar 8 and 9, probably equal to three weeks' fighter production at the present reduced rate.

Among the top priority factories smashed, spotted by the *Lightnings* on their offensive patrol of Mar 3, were the Daimler-Benz engine factory and the Heinkel V-2P ball-bearing works, the latter almost entirely destroyed as a result of 500 bombs dropped squarely on the target.

The heavy attacks during daylight have so disrupted the city's facilities that organized life has become extremely difficult. Reports that the German machinery of government is now in Berlin, contemplating a move before the last RAF attack (Feb 15-16), now appear highly credible. Refugees are saying "Berlin is no longer a capital, no longer a city." One recalls Peking, Nanking, Chungking, and wonders what the Generalissimo, Mao, Chiang Kai-shek and the officials of Free China are thinking when they read such words.

NAVIGATOR

Fortress' 5,000 hrs. Sets Flight Mark

AAF tightens maintenance program in move to extend life of warplanes.

The Army is learning to keep such planes in service for a longer period through intensification of maintenance procedures. Battle losses are expected but the service life of battle planes has been comparatively short.

That it can be done, has been

New Mars Record

Newly Air Transport Service's flying boat Mars has flown the longest air mail line in history or nearly 300,000 letters from service men in the Pacific area. It departed from San Francisco less than a day after leaving Pearl Harbor.

The mail weighed 23,000 pounds. An additional 1,000 pounds in mail were material was carried. The mail load is some 9,000 pounds heavier than any prior air mail cargo.

demonstrated by the 46th Specialized Pilot Training Squadron at Randolph Field, Tex., where a Boeing Fortress powered with Wright Cyclones recently set what is believed to be an all-time record for sustained performance of engines and plane in one day.

5,000 Hours' Flight—The particular Fortress used in setting the record in the first four-engine bomber that has ever passed 5,000 hours of flight time, and in setting the one-day operating record made 33 takeoffs and landings in 13 hours, according to Curtiss-Wright Corp.

Bertrandias Back

Col. Victor E. Bertrandias, former vice-president of Douglas Aircraft in charge of sales, is back in that country after a tour of duty with the fifth service area command in Australia, where he was charged with helping Douglas and other combat and transport planes flying. During the 18 months he has been on active service overseas, Col. Bertrandias was awarded the Air Medal for participation in the raid on Weisk.

Charlton Gets Navy Production Title

Rear Admiral Alexander M. Charlton, has been named deputy production officer of the Navy, under Vice Admiral Samuel M. Robinson, chief of the Office of Procurement and Material, replacing Rear Admiral Theodore Kiehl, retired, who has been placed on the inactive list.

The Program and Procurement branch has been combined with the Production branch under Admiral Charlton. Capt. John D. Reid, heads the Material and Products Control Division, which combines the Materials Division, dealing with supply, the Products Division which schedules components, and the Material Control Officer Division.

4,000 Airacobras Sent to Russia

Bell Aircraft has sent approximately 4,000 P-39 Airacobra fighters to Russia under Lend-Lease arrangements or about 50 percent of the United States planes made available to the Red Air Force, the company says.

WRIGHT POWERS THE TONNAGE OF THE AIR



Utility or Waste ?



The Wright large head cylinder has produced a 17% increase in power without increase in weight.

Fuel in an engine cylinder can behave in two ways: it can burn usefully or explode and waste its energy. For best power a fuel must burn. The combustion speed of fuels has been checked as accurately as a bullet. It's slower—only about 150 ft. per second—than this is about the right flame speed to provide proper pressures on the piston during the entire power stroke.

Detonation, which causes the familiar "knock" or "ping" in a car, retards when part of the fuel burns normally and the remainder, under high pressure, explodes like a firecracker—with higher pres-

sure, higher temperatures, and waste of energy.

The problem is engine design is to obtain maximum power at minimum consumption from a fuel without causing detonation. Angle and strategic cooling is important. So is the compression ratio and the degree of supercharging, or mixture pressure at various engine speeds. The more use of higher octane fuel will not produce more power. The engine must be designed to take the fullest advantage of its better combustion qualities—containing no product in the Wright laboratories.

Cyclones and Whirlwinds Light Gasolene Powerful

WRIGHT Aircraft Engines

"American Evaluates Pound Saved on a Plane at \$600⁰⁰"

SAYS CHARLES A. RHEINSTROM,
V. F. TRAFFIC, AMERICAN AIRLINES



"The necessity for exercising the strictest control over a plane's empty weight is constantly being brought home to the manufacturer by the airlines. Pounds saved on military planes, of course, mean additional speed, range, armor, firepower—factors which cannot be evaluated in money. In commercial aviation, however, a lifetime price tag can be attached to reduced weight. It is estimated at American Airlines that the figure on that price tag amounts to \$600.00 during the first five years of the life of a plane for each pound saved."

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Comprehensive weights of various types of self-locking nuts comprehensively analyzed for the maintenance of aircraft designers, engineers, operating and maintenance personnel. Copy will be sent you, free, upon request.

UP TO 60 LBS. PER PLANE SAVED BY ROOTS NUTS

- Standard fittings for all types of military planes—fighters, bombers, cargo carriers.
- Will be standard on commercial planes also after victory.
- For lighter, but tougher than another fastener—
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- Can be used over and over again.
- "Outlast the plane."



ANCHOR NUT—WING STYLE
This is one type of the famous Roots self-locking nut.

ROOTS SELF-LOCKING NUTS

"They Fit With Their Roots On—Tighter"

Boots Aircraft Nut Corporation, General Office, New Canaan, Conn. Dept. L

PERSONNEL

Howard A. Board has been appointed vice-president in charge of engineering and a director of Scott Aviation Corp., Lancaster, N. Y. He has been chief engineer since 1941, charged with all engineering, research and development work. Before joining Scott he had charge of all instrument work at Buell's Aeronautical Corp. Other changes at Scott include: Philip E. Modakow, director of Oxygen Research for Scott. He

was partly responsible for the basic design of Fortresses now being used in Europe. In 1942, Wells received the Lawrence Sperry award for outstanding contributions to the art of airplane design. During the last three years he major interest and work has been on the Boeing B-29 Superfortress.

Perry Yates, general manager of Bendix-McCormack-Patterson Corp., has been elected vice-president. He will continue as general manager of the Birmingham Modification Center where B-24 Liberators are modified. J. C. Frank, controller, has been elected assistant secretary-treasurer of the corporation.



Board

Modakow

was active in the production of British aircraft oxygen equipment manufactured by Scott before Pearl Harbor, and has been responsible for the design and development of portable oxygen equipment for aircraft, including the Emergency and Walk Around equipment. H. F. Whittaker is now director of Chemical Research

George F. Lewis has been appointed assistant to Harry H. Brachman, manager of the traffic department of the Aeronautical Chamber of Commerce of America. He has been engaged in traffic and labor relations problems of several industries including the automobile industry.



Raymond J. Cowles has become sales manager of the Lycoming division of Aviation Corp., Wilkesboro, Pa.



Whittaker

Cowles

where many recent advancements have been made. He was formerly with DuPont and with the National Research Council in Washington, D. C., is head of the Research Information Service. L. M. Cass has become personnel director. When he joined Scott, he was a consultant in financial and accounting problems, specializing in development of cost systems.

Howard Curtis Wells, chief engineer for Boeing Aircraft Co., has been named by the Seattle Junior Chamber of Commerce as "Seattle's Young Man of the Year." Wells, 33, is one of the youngest men to hold the position of chief engineer with a major aviation concern in the U. S. In 1934, he became assistant project engineer on the Boeing B-28, first of the series of Flying Fortresses. He



Williams

G. M. Williams, former vice-president of Curtis-Wright Corp., has been elected a director with headquarters at the corporation's offices in New York. Previously he was assistant to the chairman of the board of Consolidated-Vulcan Aircraft Corp., on leave of absence from the Russell Manufacturing Co., of which he was president.

W. G. Jennings, acting manager of the Tulsa Douglas Aircraft plant, has been named manager. He succeeded H. G. Williams who is now engaged as Douglas representative at Birmingham Aircraft Co., Oakland, Calif. B. C. Macintosh has been named by Douglas to be acting general superintendent in addition to his duties as assistant manager of the Tulsa plant. Herbie F. Hollek has been appointed traffic supervisor in New York City for American Airlines, Inc. He will supervise representatives of passenger traffic, cargo and poultry.



ROOTS AIRCRAFT STARTS NEW NETWORK SHOW:

Dramatizing Boots Aircraft Nut Corp.'s new radio program on the Mutual network are (left to right) Glen L. Morris, guest at the first show, Col. N. Jay Best, president of Boots Aircraft Nut Corp., Casey Jones, aviation pioneer, who appears regularly on the new series titled Wide Horizons, and Eddie Dowling, star of the new show. Account for Wide Horizons is handled through Cref and Presbury agency.

George L. Fisher, chief of the 13th Air Force in the South Pacific. He has been in the South Pacific theater since 1942.

Joseph G. Lefkowitz, formerly works manager of St. Louis Aircraft Corp., has been appointed assistant factory manager of Fairchild Aircraft Division, Burlington, Vt.

Dr. Byron E. Mueser, chief engineer of Skyway, Inc., of Port Jervis, N. Y., has been appointed executive vice-president.



He was a pioneer in the sandwich type of airplane construction, which recently became known through the deHavilland Mosquito bomber. He has spent five years with Skyway, which specializes in building linear monocoque of the sandwich type.

C. M. Goss has been appointed field service representative of the Ryan Aeronautical Co.'s exhaust system division. Field instruction in the installation and servicing of Ryan exhausts will be his chief duty which includes the extent of this San Diego Company's activity in monocoque production.



J. B. Smith of CAA, formerly in the Airway Traffic Control center at La Guardia Airport, has been appointed chief controller of the center at Washington National Airport. Before joining CAA in 1938, Smith was with Eastern Air Lines.



Stanley S. Cassner, inspector of aircraft of the Douglas Aircraft Corp., in Santa Monica, has returned from a trip to Natal, Brazil, Guayaquil and Lima.

Walter A. Vase, flight superintendent at Edmonton, Alberta, on the Northwest Airlines military cargo air route to Alaska for the last two years, was named chief meteorologist for the NWA eastern region. E. N. Galick, Northwest station manager at Fargo, has been named to



15 YEARS WITH TWA:

E. L. "Duke" Smith has been awarded Transcontinental and Western Air, Inc.'s 15-year pin by Vincent P. Conway, TWA vice-president in charge of traffic, who flew to the West Coast from Kansas City for the occasion. Smith is assistant to Conway.

He has held the same position at the airline's Twin Cities base at Wold-Chamberlain field. He has been succeeded at Fargo by W. L. Holmgren, who has been at Edmonton, Alberta.

H. A. Vanden, formerly of Cleveland, succeeds Richard F. Dorsey as United Air Lines' monocoque station manager in Washington. Dorsey goes to Chicago as manager of station cargo service.

Major Paul Morris, Air Transport Command pilot who formerly flew for Braniff Airways, has been awarded the Distinguished Flying Cross.



MAP STUDY:

Two week Arizona Canadian Pacific Airlines officials study the Canadian map in this new photo. They are G. W. G. McConachie, general manager of CPA's western routes, and C. M. Dickson, vice-president and general manager.

William J. Koenig (left), superintendent of the Newark plant of Hamilton Standard Propellers, a division of Pratt & Whitney, is



visiting United Aircraft Corp., has been transferred to the main plant at New Bedford as staff assistant in the office of the general superintendent. Carl A. Krause (right), superintendent of the Watbury, N. J., plant, will assume the added duties of plant superintendent at Newark. J. V. Johnson will assist Krause at Watbury and Adolph Morris at Newark.

Dr. Harry K. Andersen, professor at Northwestern University, becomes coordinator of training for Pan American-Continental Airlines to direct courses given at various departments and to supervise material used in these courses.



He will act as instructor to PCA director of Training James T. Rukus. He is noted for his work in visual education.

William Hays, Dayton mail and express manager for Transcontinental and Western Air, Inc., has been promoted to central region mail and express manager with offices at Chicago. Hays has been with TWA for over two years and held his Dayton position for six months before his recent promotion.



William A. Pells has been appointed assistant director of United Airlines' school and college service for the eastern area with headquarters in New York City. He is a former high school teacher at Maplewood, N. J., and has been a member of the faculty of several preparatory schools in the east.



Phillips

one of the first
and today one of
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aviation fuels

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PHILLIPS 66 PETROLEUM COMPANY, BARTLESVILLE, OKLAHOMA

A major supplier of aviation gasoline to the Army, Navy, and the National Air Force

A STEADY HAND AT EVERY THROTTLE

WITHOUT attention from the pilot, the Simmonds-Hobson Automatic Engine Control assumes efficient power-plant operation under varying flight conditions. A notable development in aircraft engines, it is equivalent to a third hand for the pilot—giving automatic control of manifold pressure (boost) and mixture, thus providing engine protection and economy of operation.

Simmonds-Hobson Automatic Engine Controls have been specified for the most advanced types of fighter planes, where they are performing an outstanding job under exacting military requirements. Through continued research and refinement, new and more advanced designs, extending to the propeller governor, pump, and other engine functions, will be available to render increased service for aerospace assignments.



The Simmonds-Hobson Automatic Engine Control Model 45

Simmonds Equipment
Files with Every Type of
Allied Aircraft

Automatic Engine Controls
Push-Pull Controls
Hydraulic Actuators
Hydraulic Pumps
Governing Reducers
Switch Flaps
Sail Lifting
Brake Systems
Cooking and Fuel Churns
and Pumps



AIRCRAFT PRODUCTION

Aircraft Industry Does Record War Job at Low Profit Level

Earnings under all other major manufacturing divisions, SEC reveals in comprehensive survey of corporation incomes.

The outstanding job being performed by manufacturers of aircraft and aircraft equipment on a small margin of earnings is pointed up by the comprehensive survey compiled by Securities and Exchange Commission on profits and operations of leading industry groups. The report is based on registration statements and annual reports filed under the Securities Act of 1933 and the Securities and Exchange Act of 1934.

The aircraft industry is doing its record wartime job at a lower profit margin than any other major industry surveyed by the SEC, it was pointed out by the Aeronautical Chamber of Commerce. The survey, covering 1942, showed a profit of only 3.4 percent on sales of aircraft, a sharp decline from pre-war years.

Low Profit Margin.—Following the aircraft industry at 3.4 percent, the survey showed: rubber 3.3 percent; railroad equipment 3.0 percent; electrical equipment 4.1 percent; industrial machinery 5.3 percent; and agricultural machinery 6.1 percent.

The SEC's survey also showed that the various industry groups centered, not profit in percentage of net worth, which in the case of the aircraft industry emphasized the great expansion made in order to meet constantly accelerating schedules necessary to build America's armory.

Sales Volume Return.—The Chamber statement pointed out that the true measure of the aircraft industry's profit level is the return on sales volume, and held that the use of net worth, as a yardstick for profits is unjustified in considering the aircraft industry in view of the tremendous expansion of the past few years. Virtually all manufacturers in the aircraft industry started with comparatively small capital.

"The typical aircraft company

has been denied of working capital through greatly expanded operations, but its risks and responsibilities are continuing," the Chamber statement said. "The industry's small profit margin must be maintained if it is to survive after the war and fulfill its general obligations to the nation."

Net Sales.—The SEC survey covers four volume dealing with data on sales and operations of 1,105 companies and their consolidated subsidiaries in 73 manufacturing groups. Volume II covers 13 industry groups, comprised of 271 corporations, and includes 34 aircraft and aircraft equipment manufacturing companies.

Net sales of the 26 companies totaled \$4,314,642,666 in 1942, compared with \$1,784,322,566 in 1941 and \$86,465,920 in 1936, according to the combined industry chart.

Net profit before income taxes, as a percentage of net worth, was 19.2 in 1942 and after discharge of the tax obligation 15.2 percent. In terms of cash this meant \$568-\$578,666 before, and \$113,463,666 after taxes.

Figures Prepared.—The figures presented in the survey, which was prepared by a group headed by Ralph H. Knapp of the Trading and Exchange Division, are, in the case of some companies, adjusted after reorganization of war contracts. Naturally, they would be materially revised in percentage if all companies had made such adjustments.

Obviously those companies showing the greatest margin of profit, before and after taxes, had made no provision in their reports for reorganization. Consequently, the result of reorganization will have a material adverse effect on the amount of profit for the year 1942, but it is impossible to estimate the final effect at present.

Profits Reduced.—In all cases, the percentage of profit before and after income taxes was considerably less in 1942 than in 1941, since the low covering reorganization of contracts did not become effective until April, 1942.

On the basis of these qualifying factors, the table on page 26 illustrates the pattern of profits for the years 1938 to 1942 inclusive.



HOUSE GROUP VISIT CURTISS-WRIGHT:

Rep. Milton J. Maas, of Minnesota, center, making minority member of the House Naval Affairs Committee, examines a model of a Curtiss Navy biplane at a surprise visit of a subcommittee to the Curtiss plant of Curtiss-Wright Corp. Other subcommittee members are, left to right: Rep. Robert A. Grant, Indiana; Rep. William E. Hess, Ohio; and W. Vaughan, Curtiss-Wright president; J. P. Davis, general manager of the Curtiss plant; and Rep. W. Sterling Cole, New York.



Only 1 WAY to Control 3 WAY Vibration

Control of vertical vibration is also caused by a combination of impulses from two or more directions.

AERONAUTICAL engineers, engaged in designing and specifying radio equipment, aerial cameras, and delicate flight instruments, are confronted with a problem—vibration control. The great power of the modern airplane has made vibrations more serious than ever.

Robinson engineers have found that high-powered airplanes create vibration in three directions. In addition, varying amounts of terminal vibration are encountered—caused by a combination of impulses from two or more directions.

All attempts to control 3-way vibration by vertical absorption alone, with the conventional shock mounts, have been unsuccessful. Robinson engineers have developed a new principle for absorbing such vibration with a single, simple shock mount assembly.

We have prepared an analysis of this problem and its solution in the form of a booklet describing 3-dimensional vibration in airplanes and the Robinson principle, together with photographs and test curves of a few of the many successful Robinson-designed shock mounts. We will be glad to send you a copy.

ROBINSON AVIATION, INC.
730 FIFTH AVENUE - NEW YORK 15, N. Y.

Formation of Aviation Commission Urged to Map Industrial Policy

United Aircraft's Vice-Chairman Wilson asks for body similar to Morrow group to recommend Congressional program for post-war reconversion.

Necessity for a new policy providing for optimum conditions under which American aerospace could develop naturally has been emphasized by Eugene E. Wilson, vice-chairman of United Aircraft Corp., who suggested appointment of a committee of responsible citizens who can recommend to Congress an American air policy which will reflect the point of view of all responsible authorities and thus command the confidence and support of the American people.

He points out that after such a policy has been crystallized the United States would be ready to sit down in an international meeting and, with full regard for our national interests, try to evolve a world policy designed to preserve peace and promote prosperity.

Economic Club Speech—Wilson outlined his views before a meeting of the Economic Club in New York.

Wilson recalled that in 1925, in response to charges by Gen. William E. Mitchell that the Army and Navy were stifling aviation, Calvin Coolidge selected a committee of nine under Dwight Morrow to judge the matter.

The group listened to about 100 witnesses who presented many

conflicting opinions. Wilson recalled and added that "yet after a brief period the Board emerged with a simple statement of sound principles. Alongside the sensational Mitchell charges they stated something, yet they became the Magna Charta of American aviation."

Long-Range Program Urged—The Board held that a strong air force is essential to the national defense, that the backbone of the air force is a strong private industry, and that to keep industry strong the Government must have a continuing, long-range procurement program calculated to promote rapid technological progress. The performance of the American aircraft industry today derives almost wholly from this policy, although as Wilson pointed out "at times, it was neglected by the Government."

Analyzing these principles, it evolves that they fix the responsibility for national defense on Government and industry jointly and they recognize advanced technology as a vital strategic asset. Under these principles, Wilson noted, private manufacturing industry planned for defense and arrived at the outbreak of the

European war with two vital assets: first, superior technology, and second, the ability to expand around a new production principle, that of flexibility.

New Consolidation Urged—Wilson believes we still ourselves now in a new situation similar to that which caused President Coolidge to appoint his Morrow Board, and thereby recommends a new commission.

Termination Problem—If war outbursts are terminated in the ruthless manner of World War I, the industry can hardly survive," he said. "This is especially true in this war, since profit limitation has precluded accumulation of reserves adequate to carry through termination under any other than orderly procedure. If surplus war stocks are dumped, as in World War I, its market will be impaired. If surplus war plants are government-operated, in competition with private industry, the results would be fatal, for no seller can compete successfully with his customer."

Wilson emphasizes that, since the backbone of air power is a strong private aircraft industry, the public interest demands swift and orderly liquidation of contracts, disposal of surplus goods, and thoughtful handling of surplus plants.

War Surplus—The public interest, he continues, demands a high level of employment and forced liquidation of these assets, as if they were commercial assets, with the idea of applying the recovery to reduce the public debt, would produce but a



FIRST AAF PHOTOS OF NEW KELLETT AUTOGIRO UNDERGOING TESTS:

Two views of new Kellett Autogiro, the YU-40, now under test at various points of military-use credit by the Army. Picture shows the blades folded back for ease in storage or camouflage. The other was taken a moment after takeoff. The planes are ex-

pected to be used in observation and liaison work. The new autogiro is powered with a 200-hp Jacobs engine. Excellent visibility is obtained by installation of a large bubble-type canopy and window in bottom of fuselage.

small percentage of the original cost. The return could hardly begin to approach the early forecast which would inevitably result from unemployment produced by dismantling the economy.

► **Nuclear**—"If we have a clear recognition of these principles and courageous administration," Wilson says, "we can emerge with a strong nucleus of an aircraft industry derived from those companies which have performed best in the war effort, particularly along technological lines."

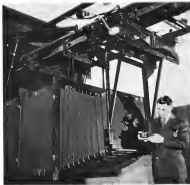
Six-Ton Camera

Huge model cuts time on production of 'Fortress' templates.

A six-ton camera and three-ton printing machine are cutting days from production time at Flying Fortresses at Boeing plants, turning out templates formerly built by hand from blueprints.

Chief value of the template camera lies in the speed with which variations in construction detail can be made. Another advantage lies in the fact that hundreds of copies of a template can be made from one photographic negative and shipped to plants over the country. Under former methods, there would have required individual copying. With some 30,000 templates required for the Fortress, the savings are obvious.

► **Master Layout**—The master layout is laid on a lacquered sheet of this steel, which then is photographed with a tolerance of not more than one-thousandth of an inch. The sensitized steel negative is then transferred to a developing tank that uses nearly one ton of hypo crystals for each solution. It is then checked for final accuracy and cut, routed or drilled according to surface outlines.



Boeing's Six Ton Camera: Glen M. Jones, Boeing's photo template chief, contemplates a test-pocket version beside the 22,000-pound model that speeds template work on Flying Fortresses.

Bendix Workers Vote Post-War Preference

More than 40 percent of war workers in Bendix Aviation Corp. plants do not wish to return to their former occupations after the war and are hopeful of remaining in their present field, despite the fact that 60,000 are now employed, compared with a pre-war total of less than 10,000.

In a comprehensive survey designed to provide Bendix executives with information of employee attitudes and other questions, 41.6 percent of the employees replying do not want to go back to their former occupations. Some 18 percent expect to return to former jobs and nearly 25 percent are undecided.

► **Post-War Problem**—When it is considered that former employees of Bendix now in the armed services are entitled to return to their jobs, the post-war problem of even this one relatively small employer of war workers is emphasized, with well over 30,000 wanting to rejoin with a company which normally might be in a position to employ only one-third of this number.

It is regarded as significant that approximately the same percentage of Bendix employees reported that they owned the homes in which they live—42.5 percent.

Seventy-three percent said they considered absenteeism a serious problem and more than 5,000 commented on the cause, making 2,225 suggestions for reducing absenteeism.

Ford Unit Supplies Urgent B-24 Orders

A centralized depot for emergency shipment of spare parts for B-24 Liberator is now handling 80 percent of that type shipment. Ford Motor Co. reveals, with as many as 800 emergency orders being handled in a single day from the new spare parts building at Willow Run.

► **Spare Parts Supplied**—Ford estimates also that it is supplying more than half of the spare parts used on the B-24s and said 90 percent of the parts used on all models are interchangeable. Production of spare now is keeping pace with the production of B-24s.

SOMETHING OLD and SOMETHING NEW

This is the story of broaching . . . Broaching—the machining operation which has so vastly changed the cost on mass production precision parts . . . Broaching—which is as old as man's search for tools, as new as tomorrow's dreams.

At the turn of the century the demand for mass production precision parts welcomed with open arms the Lapointe invention of the pull principle in broaching and the development of engineered design in broaches and broaching machines. America's mass production dates from this beginning. It was by broaching that the automobile industry and dozens of other producers of consumer goods were able to mass produce interchangeable parts. It is by broaching that aircraft and armament parts are exceeding production schedules. It will be by broaching that thousands of products from safety razors to steam shovels will be made better, quicker and cheaper.



Founded in 1925, The Lapointe Machine Tool Company is the world's oldest and largest manufacturer of Broaches and Broaching Machines.

The **LAPOINTE** Machine Tool Company
HUDSON, MASSACHUSETTS U. S. A.

- Aviation Calendar**
- Mar. 31—Wings Club, 8th annual dinner, Waldorf-Astoria, New York.
 - Mar. 31—Retreats of Indianapolis Motor Club, Airport at War Club, Airport.
 - Mar. 31—4th Leadership Training, New York, Elton Chalmers of National Aeronautics Association, President.
 - Apr. 3—4th—Greater New York Safety Council annual convention and reception, Radio House, New York.
 - Apr. 3—4th—National Aeronautics Meeting, Radio House, New York.
 - Apr. 3—4th—Radio and New York Aircraft War, Radio House, New York.
 - Apr. 3—4th—Radio and New York Aircraft War, Radio House, New York.
 - Apr. 3—4th—Radio and New York Aircraft War, Radio House, New York.
 - Apr. 3—4th—Radio and New York Aircraft War, Radio House, New York.

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**RED
CROSS
WAR FUND**



FEET ENLARGEMENTS (2" wide of the narrow foot) Edward Duffy, vice-president of the Parker Shoe Co. in new article. *Wife of one General (London, En Route Home, President, Liberty Motors & Engineering Co., Baltimore, Md.)*



LIBERTY TEST UNIT (Type 181) (Type 181) is complete, compact and portable. Holds up to the ship and thoroughly tests and calibrates all types of aircraft instruments, including their accessories and installation, in a few hours. Saves days over other methods. Self-contained and may be completely closed and locked. Because of its versatility and high efficiency, this unit is extensively used by the U. S. Navy, the British, Canadian and Russian Governments, as well as by airlines and aircraft builders. Write for complete information.

Test ALL Aircraft Instruments with this ONE Portable Unit Quickly.. Completely.. Accurately

THIS Liberty Test Unit (Type 181) is complete, compact and portable. Holds up to the ship and thoroughly tests and calibrates all types of aircraft instruments, including their accessories and installation, in a few hours. Saves days over other methods. Self-contained and may be completely closed and locked. Because of its versatility and high efficiency, this unit is extensively used by the U. S. Navy, the British, Canadian and Russian Governments, as well as by airlines and aircraft builders. Write for complete information.

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MANUFACTURERS OF AIRCRAFT SERVICE TOOLS AND TEST EQUIPMENT

CAB Report on Feeder Survey Assailed by ATA as Short Sighted

Recommendation of Examiners Madden and Beitel that expansion of existing routes be limited to cities over 25,000 population particularly criticized as leading to needless subsidy and confusion.

By MERLIN MICKEL

The report by two examiners on the Civil Aeronautics Board's local - feeder - pickup investigation was caught last week in a cyclone of criticism, objection and exasperation, with the Air Transport Association one of two dozen or more who took issue with the findings. Since ATA represents the domestic airlines, it was significant that its statement around one point raised by the examiners. This was their recommendation that route expansion of existing air carriers be limited to cities of 25,000 or more population.

Arbitrary Limit—Examiners William J. Madden and Albert F. Beitel had suggested that as a "working criterion"—an arbitrary limit below which additions to existing routes would be made only as showing their effect on later opening and operating feeder services in the same general area. Their report showed 412 places or over, 189 of them designated as outstanding air carrier candidates.

Such a limitation, ATA contended, "would violate sound transportation principles, invite a wholly needless burden of govern-

ment subsidy and threaten the future coherence and efficiency of the air transport system." The Board should see, it was said, at a system under which carriers present and future, would have opportunity to attain self-sufficiency, without dependence on government subsidy or disproportionate diversion of public rates.

Compensation—The Association characterized the "grave error" as assumption, born of wartime conditions that existing or prospective trunk air routes will not need strengthening. It forecast new competition in certain markets as improved speed and efficiency and the "inevitable growth of private carriage by air."

"It is evident," the letter stated, "that if there is to be a successful air carrier system plans for its growth cannot be based upon any assumption that the operator of a trunk line should be excluded from the development of traffic to new points which he can economically serve."

Discrimination—The suggested restriction, ATA argued, would delay service to smaller communities and discriminate against them in such a way that their eventual service would be the "worst and most expensive," rather than the best and most economical.

"However many non-trunk routes or areas there may be which



CPA DISTRICT SUPERINTENDENTS MEET:

Canadian Pacific Air Lines district superintendents met at Edmonton to go over operational problems with C. H. Deloux, vice president and general manager. Back row, left to right: R. B. Phillips, Alberta district superintendant and acting superintendant Yukon district; Capt. Russ Jodrey, assistant superintendant Yukon district; O. H. Johnson, regional traffic

manager, western zone; W. J. Windham, Saskatchewan district superintendant; W. T. Owen, assistant superintendant, Mackenzie district. Front row: E. R. Field, British Columbia district superintendant; G. W. G. McConachie, general manager, western zone; Deloux, H. W. Ryan, general superintendant, western zone; W. E. Gilbert, Mackenzie area superintendant.

to be served by the truck operators, no artificial limitation should be imposed which would effectively foreclose for any class of air transportation the attainment of the highest possible standards of air service." Of equal importance, the Association added, was that issues in the feeder service studies be determined as part of the whole post-war air transportation network problem, rather than as though feeder service were "a thing apart."

Principles—With this statement of ATA's show, Edgar S. Cornell, president, submitted a discussion of general principles that should govern expansion of the domestic airline system, by Dr. Lewis C. Merrill, the Association's research man. Merely submitted for the Board's information, the Merrill study was not intended to reflect ATA views, and has not been acted on by the Board of Directors.

Not all the comment received by the examiners was as critical as the Association's. Several letters came in complimenting them on their carefully compiled report. But the majority took issue.

Greyhound Statement—Among them was a printed statement from Greyhound Corp. which not only took exception to the report in eight instances, but renewed Greyhound's request, already in a motion, that the Board hold up issuance of permanent certificates "in order that there need be no sacrifice of the post-war air transportation system to serve the demands

of the present." Legal Training also requested oral argument.

Greyhound and others wanting oral argument are going to have their wish granted. The Board has set April 3 as the date. In view of comments already at hand, which have been coming in since the Madison-Bell report was announced Feb. 9, the Board has decided tentatively to allow two days for hearing arguments. Time allotments will be made to those desiring to be heard, who are requested to inform Chief Examiner C. Edward Lenzore of the approximate time they will require and other details.

The ground to be covered seems to fall into five categories of application: by presently operating carriers, surface carriers, prospective new carriers, helicopter carriers, and pickup carriers.

New Examiners

CAB adds to staff in strength to keep pace with new applications.

In an effort to keep abreast of the flood of applications before it, the Civil Aeronautics Board has added four new examiners to its staff in recent months. Wartime demands have depleted the staff, which is faced with an immense amount of business, and the additions will help meet the problem. H. Heinrich Spang came to the Board in October, 1943, with 12 years' experience on the legal staff of the Interior Dept.

Legal Training—Steven Fredricks is a graduate of Georgetown University. He practiced law in New York eleven years prior to joining the industrial proceedings section of the CAB and became an examiner in the summer of 1943.

F. Merritt Buhlen, Ohio State and Harvard, practiced law in Rochester, N. Y., for five years. He enlisted in the Army as a private and received a medical discharge after eight months' service. He has been with the CAB since last January.

William F. Clark is a graduate of George Washington and Colambus Universities. He was in a Washington law office five years, joining the CAB in November, 1943.

Curb on Foreign Air Carriers Urged

Labor chief warns of move to let outside lines carry cargo beyond port of entry.

Granting of the right of innocent passage in the United States to foreign airlines will only make it a matter of time until American passengers and freight will be moving from laborer cities on those carriers, in the opinion of Harvey W. Brown, president of the International Association of Machinists (IAM).

Brown, one of the authors of a resolution dealing with post-war air commerce adopted by the Railway Labor Executives' Association, charged that there is "active influence by England" to bring about an arrangement whereby foreign airlines could go beyond the port of entry. Brown's attitude was that "it will be only a matter of time until there will be criticism from persons seeing half-empty planes and airplanes. He pointed out the foreign airlines permission to pick up passengers at interior American points. The resolution was drafted by a committee consisting of Brown and J. G. Lohman, executive secretary-treasurer of the Association.

Forward Step—The railway labor executives declared a "great forward step" would be taken "if each type of transportation should be required to bring the full cost involved in transportation by that group, as a result of the elimination of subsidies." Then, the resolution states, would tend "forward bringing about fair and just competitive conditions among the several types, establish-



Mustangs Raise Hell in Heavens

Seven miles upstate, Yank pilots ride the wings of force-charging Mustang fighters, dealing death to Nazis desperately trying to intercept our high-altitude heavy bombers. Here in the arctic cold of the stratosphere a chronicle of victory is sky-written by white vapor trails and by the searing flame of an enemy plane in its last screaming earthbound plunge. The men and women of North American Aviation are proud of the "angels from hell" who pilot these averaging P-51 Mustangs—proud, too, of their own vital part in America's production front.

North American Aviation Sets the Pace

We make planes that make headlines . . . The B-25 Mitchell bomber, the AT-6 Texan combat trainer, the P-51 Mustang fighter (the A-36 fighter bomber), and the B-24 Liberator bomber. North American Aviation, Inc. Member of the Aircraft War Production Council, Inc.



NEW EXAMINERS HELP CARRY HEARING LOAD

Four recent additions to CAB's staff of examiners are shown grouped around sources William J. Madors (seated). Standing, left to right, are H. Heinrich Spang, F. Merritt Buhlen, William F. Clark and Steven Fredricks. The Board now has twelve examiners, while from Chief Examiner C. Edward Lenzore and his assistant, Frances Brown.

"SOUTHEASTERN"

the New Name of Georgia Air Service, Inc.

In order to more accurately describe the scope of our operations, we have changed our name to Southeastern Air Service, Inc. This is a logical step, for the organization which was known as Georgia Air Service, Inc., has "grown up," and renders air service throughout the Southeast. Our organization and our work remain the same. Our war-time job continues to be concentration on Primary Training for the Army Air Forces.

- ★ No Change of Service
- ★ No Change of Personnel
- ★ No Change of Operations

POST WAR PLANS are important, too! The hundreds of pilots, mechanics and aircraft technicians among our skilled personnel constitute a smooth-working machine which can render invaluable service to aviation in the Southeast. Our vast backlog of experience in war flying will be available to both commercial and private flyers. Through our affiliated company, Southeastern Air Service, Inc., we plan a system of feeder air lines. Southeastern Air Service, Inc., is the name which will designate the food base operations. We have continued contacts from manufacturers and others in aviation who are interested in post war sales, service and maintenance "all over Dixie."



**SOUTHEASTERN
AIR SERVICE, INC.**
Formerly GEORGIA AIR SERVICE, Inc.

Flight Contractors to U. S. Army Air Forces — Bennettsville, S. C. and Jackson, Tenn.
EXECUTIVE OFFICES — ATLANTA, GEORGIA

ing a proper and economic distribution of traffic, and developing a sound over-all transportation system in the public interest. It is, therefore, our view that under a competent system of private operation and management, without subsidies, a national transportation system can be developed that will be superior to any in the world."

The resolution does not go as far as shown in depending control on air-space. Said the resolution: "It is particularly important that wage and living standards... should be protected... we are opposed to any loosening of our government control of our air-space, and think that every application of any foreign airline to fly into or away from the United States, whether or not authorized to carry traffic, should be separately considered as at present. In this way, the foreign airlines can be limited to a fair share of American international traffic."

► **Border Towns Urged**—Four that airlines would control traffic from the interior to foreign points, to the reduction of air travel seems to be explained in a version of the resolution that "foreign lines operating to the United States should terminate at our regular border ports, our domestic airlines should be limited to the domestic field, and American international air transport service should also terminate at border ports to act as end-on carriers with both our rail and domestic air carriers."

► **Oppose Monopoly**—The railway labor executives want the international field restricted to one carrier representing the United States, with domestic carriers given the opportunity to have an interest.

"We are opposed to any one American line or any one monopoly over our foreign commerce," the resolution states. Since the Association includes labor executives of steamship and longshoremen's unions, Brown was asked whether the same trend of thought was being applied toward steamship companies—one carrier with all companies participating—but he said it was not, adding that steamship lines "do not have to get transoceanic rights like airlines."

Airport Survey

Michigan State Board of Aeronautics has started a series of surveys designed to supply it with a master plan of possible private flying field sites. The Michigan Wing of the Civil Air Patrol is conducting the study.



"Mosquito"—Super-Superster. The 408 mph-plus speed of the Mosquito bomber has led to conjecture that a plane of this type could be used to provide super-speed transcontinental service for 25 passengers at a previous fare.

Mosquito May Alter U. S. Air Schedules

Record run between Toronto and New York adds to belief that high-speed transport may offer extra-fast service.

British success with the high speed Mosquito bomber may bring changes in the post-war airline picture in this country, making possible deluxe transcontinental express service in planes similar to the Mosquito.

Heretofore the comparatively higher speed of the commercial airliner measured against surface transportation has helped. But even before the war, there was considerable talk about super-speed service offered at a premium. This chiefly centered around larger planes flying non-stop in the stratosphere. Actually, no plane was developed that could economically provide such service, and recent discussion in the industry has centered about four-engine ships with a passenger capacity of about 50 persons.

► **Coast-to-Coast in Eight Hours**—Now, however, the revelation that James Pollett, chief test pilot for de Havilland, flew the jet engine trials from Toronto to New York in 55 minutes—an average of 413.24 miles an hour—opens an interesting vista for airline operators, since it would make possible passenger service from New York to New England in something less than eight hours compared with the approximately 22 hours with DC-3 operations and the 16 hours proposed for large ship service. This is in line with the trend of thought in

the industry toward frequency of service as a measure of operation rather than size. While the transcontinental time naturally will be reduced considerably with the new planes coming along after the war, nothing now in sight can compare with the service that would be possible with a super-speed plane such as the Mosquito, which in a commercial version could carry somewhere in the neighborhood of 15 passengers.

A recent discussion participated in by aircraft manufacturers' engineers and airline engineers and traffic men brought out that deluxe service—say, non-stop New York-San Francisco—would under the concept then accepted, require a fast-engine 50 passenger plane. At least that was the consensus. Yet the same object could be accomplished with the Mosquito-type plane and at the same time permit a frequency of service hardly conceivable for some time at least with the larger craft.

It also is known that some American manufacturers at least have been thinking along similar lines. For example, Northrop has been studying the possibility of converting the P-41 Black Widow for this super-speed service through use of a different fuelage which while it would cut the speed of the fighter somewhat, would still enable flight at high speed ranges, and provide for 20 or more passengers.

► **Super Service**—The super-speed service would open a situation in commercial airlines similar to that existing in the railroad industry, with different classes of travel. With the increasing importance of the western territory in the na-

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CAB ACTION

► Board's application to include Lockheed in its investigation into the CAB's behavior against Whittell Fife will be recommended by the CAB's Board of Inquiry. The Board, which consists of the following members: William J. McGee, Chairman; Thomas L. Brown and J. Edgar Hoover, members; and J. Edgar Hoover, Secretary. The Board's decision will be made by the end of the month. The Board's decision will be made by the end of the month.

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Northeast Gets OK On Mayflower Bid

CAB Examiner Law approves absorption of Boston-Nantucket line.

Northeast Airlines' proposed absorption of Mayflower Airlines, to obtain that suspended operator's certificate to transport persons and property between Boston and Nantucket, has the sanction of a Civil Aeronautics Board examiner.

Aide from some level on Nantucket Island, the certificate is Mayflower's only asset, since it has no equipment and is now in bankruptcy. Northing officials, however, decided just what they'll do with the land.

The report, by P. A. Law, Jr., recommending that the Board grant Northeast's application to acquire Mayflower, marks the second time that smaller air carrier has been looked on with favor recently by a CAB examiner. In January, another examiner proposed that Northeast be permitted to operate the north-south-over-New York-Boston route.

► **Seeks to Buy Certificate**—Northeast wants to buy Mayflower's certificate and a tract on Nantucket Island, formerly used as an airport. The \$17,500 and has an agreement with the latter's trustee to that effect. A \$2,500 deposit has been made. The certificate authorizes transportation of persons and property and has no intermediate points. Mayflower also has rights on Cape Cod, and Oak Bluffs on Martha's Vineyard.

The land is 100% water, adjacent to Nantucket's present airport. It can Mayflower \$20,000 and was awarded for purchase negotiation at \$20,000. About \$20,000 had been spent to clear it, grade runways, and build two radio towers. Northeast believes it will be handy for servicing and storing private aircraft, of which from 100 to 200 are to the island annually before the war, and it probably would be necessary to any airport expansion at Nantucket.

► **Suspended**—With the Board's permission, Mayflower suspended operations in September, 1958, thereby closing a route over an area "peculiarly inaccessible by surface transportation." An involuntary petition of bankruptcy was filed against the line in 1962.

Law characterized Northeast as "a small, regional air carrier whose authorized routes aggregate \$68

Gray in Navy Air

Parker W. Gray, original owner and operator of Mayflower Airlines, of which the Boston-Nantucket line was suspended by Northeast was recommended by Examiner P. A. Law, Jr. to be reinstated as a pilot (p. 2). In Navy Aviation, Mayflower's operations were suspended in 1959 when Lt. Col. Gray joined the RAF. Having won the DFC while flying with the British, he transferred to the Navy when the United States resumed the war. He now holds the Navy Cross and is chief test pilot for the Naval Air Facility at Trenton, N. J.

and said that, even if it occurred Mayflower will be able to maintain the additional service with the present two DC-2's in operation on AM 27 between Boston and Presque Isle, Maine. Service on the proposed extension that would not be in regular operation is available and the Board proposes the suspension of service order (Docket 1962) now in effect.

ATA Announces '43 Award Winners

Two employees of Transcontinental & Western Air and one of Northwest Airlines are announced as 1943 winners of Air Transport Association's annual competition for the best papers by airline employees on problems dealing with economics.

S. R. Frank, TWA at Burbank, was first prize of \$350, Donald Linklater, NWA at Seattle, second prize of \$150, and D. M. Crowley, TWA at Kansas City, third prize of \$100.

► **Air Mass Treasury Chart**—Frank's paper discussed construction and utilization of an air mass treasury chart. Linklater's was devoted to investigation of the use of constant level pressure charts for forecasting winds aloft. Crowley wrote about the characteristics of low pressure troughs along the eastern slope of the Rocky Mountains and how to forecast thunderstorms at night.

Judges in the 1943 contest were three members of ATA's meteorological committee: Don O'Shea of Transcontinental & Western Air, D. C. R. Bassett of American Airlines, and Dudley Benedict of Northwest Airlines.

SHORTLINES

► Pan American claims new records for landing passengers, mail and cargo at the Port of Miami. The Florida Field marine terminal. In two recent departures and one arrival, 4,000 people, including 140 passengers, passed through the terminal. Crews handled 80 passengers and almost 15 tons of cargo passengers and mail in one hour during that period. In a 35-hour period including this time, 4,000 tons of passengers cargo and mail were checked in and out. Passengers arriving and departing handled 80.

► Transcontinental & Western Air has added three daily schedules through Reading, Pa., pending possible expansion of Philadelphia Airport. One cartered and one west-bound flight had been operated at Reading by TWA. The three new flights are two westbound on Transcontinental schedules and one eastbound.

► Ward from Massachusetts is that new petition for interstate operations in the Bay State have been filed with the Federal Aviation Commission. The action is being delayed pending outcome of similar matters in other states. The Commission has state aeronautics director. Some of the petitions have filed with the Civil Aeronautics Board, but it is understood that some cases remain.

CAB SCHEDULE

Mar. 17 CAB resumed, New York-Boston and New York-Philadelphia routes. California Airlines' Southwest Airlines' routes. (Docket 1961, p. 2).

Mar. 18 CAB resumed, Boston-Washington routes. (Docket 1961, p. 2).

April 1, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 2, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 3, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 4, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 5, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 6, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 7, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 8, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 9, Boarding for action in the Caribbean. (Docket 1961, p. 2).

April 10, Boarding for action in the Caribbean. (Docket 1961, p. 2).

Convair Likely to Enter Post-War Era In Strong Financial Position

Tremendous production volume and reported backlog of three billions expected to add further to company's equity values this year.

By ROGER WILCO

Consolidated Vultee's annual report was heartening to those who believe in the financial future of the aircraft industry. While an account of the year's results of the world's largest producer of aircraft is noteworthy in itself, further significance may be found in the forecasts of earnings soon to be revealed by other plane builders.

Consolidated Vultee's net income, as adjusted, for the fiscal year ended Nov. 30, 1943, was \$29,373,544—almost three times the \$10,000,000 profit for the previous year for the component units. Current earnings were \$13.76 per common share or equivalent to about the price of the stock in the market. This showing was made in the face of a reduction of \$251,000,000 in charges to the government along with provision for a further refund of \$28,000,000.

This result, however, are subject to renegotiation proceedings. **Valuation**—Key to these outstanding gains is simply the tremendous volume of production the company was able to accomplish. All told, almost \$190,000,000 in billings were reported for the year. This huge amount of sales, accompanied by a rapid turnover of capital, generated substantial residual earnings at the profit margin on sales shown by the company was only about 2½ percent. (During 1943, general industry averaged a profit margin of 8.7 percent.) This is merely a case of successful manufacturing company for any enterprise—volume turnover at a low profit margin.

Unquestioned has been the effect of their earnings in Consolidated's equity position. As of Nov. 30, 1943, the company's book value amounted to about \$33.60 for each of the 1,265,945 common shares outstanding. This was after adjusting for the 104,819 shares of pre-

ferred at the indicated call price of \$33.60 per share. About one-half of the book equity was contributed by the past year's earnings.

Asset Situation—Some confusion may be advanced that most of the equity is tied up in plant and other fixed assets. An examination of the balance sheet discloses otherwise. Out of total assets of almost \$490,000,000, around \$160,000,000 is represented by fixed or plant assets. This is equivalent to about \$11.40 per common share. And by no means does this represent an investment that will be without value in the post-war period. Inventories, representing the largest asset item, totaled \$158,330,563. As this was valued on a conservative cost basis and with the Bureau recommendations on termination of contracts as a safeguard, it is unlikely that these inventories will result in any appreciable degree.

Fortified by such earnings and with assets tending toward a cash or liquid nature, Consolidated may be expected to enter the post-war period in a comfortable financial position. And with a reported backlog of \$2,000,000,000 and assuming the current year's operations will be no worse than 1943, it isn't difficult to visualize further substantial gains for the equity values.

Not known—This is a condition that is fundamental and may well prevail for the aircraft industry as a whole. For instance, reliable reports estimate that Glenn L. Martin for 1943, will show net income according by a wide margin the \$6.01 a share reported in 1942 and on which no renegotiation refund was required.

It must be clearly recognized, however, that renegotiation seriously qualifies all aircraft earn-

ings. Extreme care must be taken to note if earnings are stated before or after renegotiation. For example, this factor qualifies Consolidated's recent earnings. In addition to the refunds made and provided for, the company calls attention to the fact that, "if a refund were required on the same general basis as the settlement for the fiscal year 1942, there would be an additional charge against net income of approximately \$7,300,000 after deduction of applicable Federal income and excess profits taxes". This would reduce net earnings by about \$5.40 per share.

Negotiation—While Consolidated does not believe further refunds should be required, it is probable that the Price Adjustment Board may consider otherwise and press for additional reductions. Unless accelerated, the processes of renegotiation may place a serious strain on the company's liquidity. However, as in the Consolidated report, the extent of possible provision of earnings will most likely be indicated by the other plane builders in their annual reports for the year.

Dividends—While the aircraft industry is ploughing back most of its earnings, some return is also being made to stockholders. During its 1943 fiscal period, Consolidated declared the largest dividend, \$1.50 per share to its common stockholders. Another dividend of 50 cents per share was paid May 1, 1944. Of course, this is in addition to the regular annual dividend of \$1.25 per share being paid on the company's preferred shares. Other aircraft companies have likewise turned the habit of paying regular dividends, albeit on a conservative basis.

The Consolidated report also revealed a trend away from cost-plus-fixed-fee contracts. During 1943, the company reported that approximately 75 percent of its total deliveries were made on the basis of fixed-price contracts. Experimental contracts, on which production costs can not be determined in advance with any degree of accuracy, were negotiated on a cost-plus-fixed-fee basis. The management is a strong advocate of the fixed-price contract, maintaining that both the government and stockholder best benefit under this arrangement.

Cost-Plus Contracts—At one time the cost-plus contract produced a loss in the aircraft industry. This was logical in many instances as the group embarked on un-

known production courses in the building of new type planes. However, with greater volume of production and actual costs more accurately known the basis for this method is difficult to support.

In fact, all industry is moving away from cost-plus. At the recent hearings on a Senate resolution which would slash this type of contract, WPA's Chairman Noyes revealed that in the second half of 1943, those arrangements made to date to 38.4 percent of total contracts involving \$10,000,000 or more and compared with 64.6 percent in the second half of 1942. Noyes did urge, however, that the proposed ban allow exceptions under special circumstances to avoid hampering vital aircraft and shipbuilding programs.

Financial Reports

Finlay Manufacturing Co., and subsidiaries, for the December quarter reported a net profit of \$151,706 or 27 cents a share against \$151,702 or 21 cents a share for the similar period in 1942. For the 12 months ended Dec. 31, net profit was \$781,128 or 90 cents a share, compared with \$335,322 or 28 cents a share for the year ended Dec. 31, 1942.

Acme Supply Manufacturing Co., Inc., reported for 1943 net profit of \$412,023 or 85 cents a share. Its share, subject to renegotiation, after \$1,040,000 reserve for renegotiation refund and \$4,058,014 taxes after post-war refund Net for 1942 after Federal taxes of \$1,226,163 and provision for renegotiation settlement was \$447,968 or \$1.94 a share.

Monroplene—This year reports that automatic pilots and electronic controls for superchargers of multi-engine planes constituted a heavy proportion of the company's 1943 sales, with the Acme Division also engaged in undisclosed production for the Army Air Forces. Total sales were \$43,140,549, up 65 percent from 1942 total. Company also provided industrial controls for the 388-ounce gasoline program, which were awarded with helping in the success of that program.

Packard Motor Co. reports 14 percent more revenue were produced in 1943 than the record output of 1942, yet net earned profit increased only \$26,260, stockholders are told in the annual report. Profits for 1942 totaled \$4,754,367

or 31.7 cents a share on its 15,048,609 or so common shares against \$4,728,237 or 31.8 cents a share for 1942. Net sales billings and other income totaled \$241,361,866, an increase of \$11,192,048 over 1942—83 percent. Taxes, renegotiation provisions and price reductions were controlling factors.

Thompson Products, Inc., and subsidiaries, including Thompson Aircraft Products Co., reported 1943 net profit as \$2,184,146, after charges, provisions for contingencies and for Federal income and excess profits taxes, equal to \$7.31 per common share. The 1942 net was \$2,681,417, equal to \$9.48. Thompson Aircraft Products Co., a wholly-owned but unconsolidated subsidiary, reported a 1943 net profit of \$460,894, against \$299,260 in 1942.

A. O. Smith Corp. and wholly owned subsidiaries reported net profit of \$2,594,887, equal to \$4.12 a share for the quarter ended Jan. 31, compared with \$1,610,691 or \$2.94 a share for the same period a year ago. Renegotiation of government contracts has been completed for the 12-month period ended July 31, 1942.



MARS PROPELLERS

The 50 production versions of the Mars flying boat will be equipped with Curtiss Electric propellers 18 feet 6 inches in diameter, water-lubricated, three-blade hollow metal models. These propellers, shown here with a Curtiss-Wright employee, will harness the four 2,200-hp Wright Cyclone engines.

Lockheed Dividend

Lockheed stockholders, voted a dividend of 10 cents a share by the board of directors last week, have been cautioned by Lockheed President Robert R. Gross that the action was not to be considered as establishing a schedule for future payments because "the more Lockheed's experience in its war work broadens, the more apparent it becomes that the company's margin of profit probably will be less than in the past."

The dividend, payable April 10 to shareholders of record Mar. 27, calls for payment of \$207,046 to holders of 1,375,690 shares.

Kellett V Loans

Kellett Aircraft Corp. has arranged a \$100,000 loan of \$2,696,000 to be used for financing war contracts and for settlement of contract termination costs. Banks participating include the Grand Trust Co., Philadelphia; Philadelphia National Bank; National Bank and Brooklyn Trust Co.

New Plane Sextant

Aircraft sextant which tells pilot, within a negligible variation percentage the plane's exact position, has been developed by Helmer Powers Division of Bendix Aviation Corp.

The aircraft sextant functions entirely on mechanical principles and is operated manually. It is not dependent on any electrical energy and there is little likelihood of its being affected by magnetic conditions. Its operation is comparatively simple. The pilot sights a heavenly body and takes his bearings from it. It checks the plane's predetermined course and determines its position when lost. Should a plane's compass or other standard guide instrument fail, the aircraft sextant comes into the picture.

The instrument requires protection against broilage, shock and weather, and Bendix said pilots were chosen to afford the greatest protection for this precious instrument. Some of the instrument housing, the company said, are machined from one piece, made by Durez Plastics and Chemicals, Inc. and the case, an intricate molding job, was produced by Rathbun Molding Corp. from medium-impact dural.

Insurance for the Future

THE PROPOSAL for a House Select Committee on post-war military policy has the hearty support of aviation. Backers also include most of the leaders in our military services, WPB, and industry.

The apparent unanimity of support and rapidity of action from the time the bill was introduced last week by Rep. Wadsworth is an encouraging demonstration of the speed at which Congress can work. Formation of the committee was expected within a matter of days, following expected approval by the President.

Thus, the crucial question of the composition and size of our post-war air force, a topic we shall see much about from now on, will come before respected informed representatives of the public, which will pay the bills. No Administration project prepared by Washington thinkers whose first thought must be political would have the public confidence needed for

undertaking such a tremendous task.

Yet, the committee, with so much of the responsibility for the fate of our aircraft industry, will have constant advice and counsel of our leaders who are conducting the war in outlining the broad principles of future preparations now before we lapse into postwar vagueness to "economize." The eventual answer may be a combined select committee of both branches of Congress.

Although it is understood in Washington that the highest military and naval policy-makers have already formally approved a coordinated war command including a unified air force, so broad and effective at some future time, this problem undoubtedly will be explored thoroughly and independently by the new committee, which will probably find certain refinements necessary before the plan is completed.

The World's Fastest

NORTH AMERICAN AVIATION reports it has been permitted by War Department authorities to announce that its Mustang fighter is the world's fastest airplane, capable of considerably more than 425 miles an hour level flight, with top ratings in War Department ratings of ceiling and range. All of the repercussions of that statement will not develop over Germany.

The U. S. Navy undoubtedly will be tempted to

announce, directly or otherwise, in similarly glowing terms the prowess of its Corsair, and from across the Atlantic will come newly phrased reports on the British Mustang.

There is nothing in aviation. A small number of new types of fighters is proposed at this moment to take the air against the enemy, and any one may become the new champion overnight. The significance is that the champions are being bred by the Allies.

Statistical Confusion

THE RECENT commendable action taken by the Aeronautical Chamber of Commerce in organizing a Research and Statistics Department should lead to a simplification and standardization of statistics concerning the aircraft industry.

Aviation has grown so rapidly that accurate analysis has been almost impossible to prepare on some phases of production. Someone else always has been able to show new figures in discrediting previous reports.

A similar coordination of facts and statistics should be made the subject of careful study in the air transport industry.

At present a plethora of airline figures reaches the public from the Civil Aeronautics Board, Civil Aeronautics Administration, Air Transport Association, Post Office Department, Railway Express Agency, and the individual carriers.

Passenger traffic and financial reports are released for individual months, quarterly periods, every six months, and yearly. Some yearly figures cover the calendar period, others the government's fiscal year ending June 30. Preliminary figures from any issuing agency usually vary from final figures, yet the painstaking researcher is not told this. Checking against other figures only adds to the confusion. Not only do tabulations by individual agencies vary, but one airline's interpretation of hours flown, passenger load factor, or available seat miles may not be the same as his competitor over the same route. Some figures

are estimates but proper identification as such is not always made.

Financial reports submitted regularly to CAB are prepared with the use of a uniform system of accounts which is generally successful, but inevitably monthly summaries, if compared for any year, fail to equal the total sent to CAB. Furthermore, the airlines frequently issue to stockholders and the press annual reports which do not tally with figures forwarded to CAB.

Post Office mail totals are frequently well ahead of data for the same flights and carriers which were filed earlier with the Board.

There is disagreement between issuing agencies as to whether the domestic airlines include Hawaiian, Caribbean and Atlantic, and Colonial. One agency includes passenger figures of American Airlines' Mexican operation with domestic totals.

It is well known that with the government's requirement of separate traffic reports for each air mail route, a single passenger making a continuous coast-to-coast flight without stopover on one airline may be counted two or three times, depending on the number of routes he uses. Every other transportation system is faced with this apparently necessary practice.

Nevertheless, many reforms could be made. Fewer statistics, better coordinated and standardized, issued possibly by a single clearing house, whether it be the air transport association or a government agency, is a worthy objective for the future.

ROBERT H. WOOD



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Not only in tires and tubes but in the actual fabrication of wheels and brakes, as well, General Tire sees to it that the Quality is there. In its own metal products division, tail wheels, brakes and main landing gear wheels are built to rigid General Tire Top Quality standards and up to A. A. F. specifications. In design—in manufacture—in service—General's products have proved their superiority. When you buy from General you are buying from the source that is known 'round the world for quality and safety—because the performance is there.

AVIATION DIVISION
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